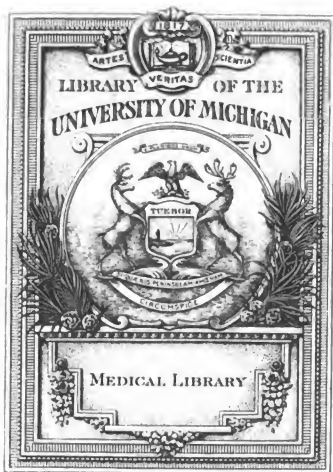


B

3 9015 00213 734 0

University of Michigan - BUHR



610.15

A5

M5

A80

THE
TRANSACTIONS

NOTE.

The additions made to the List of Permanent Members in the present volume are in many instances unaccompanied by the Post-office address. It was impossible for the Committee of Publication to supply this omission, inasmuch as no materials for the purpose exist in the Minutes of the last Annual Meeting.

INSTITUTED 1847.

VOL. XIV.

PHILADELPHIA:
PRINTED FOR THE ASSOCIATION.
COLLINS, PRINTER, 705 JAYNE STREET.
1864.

By a Resolution passed at the Session of 1851, the Committee of Publication were instructed to print conspicuously, at the beginning of the volume of the *Transactions*, the following disclaimer:—

“The American Medical Association, although formally accepting and publishing the Reports of the various Standing Committees, holds itself wholly irresponsible for the opinions, theories, or criticisms therein contained, except when otherwise decided by special resolution.”

CONTENTS.

	PAGE
MINUTES OF THE FOURTEENTH ANNUAL MEETING OF THE AMERICAN MEDICAL ASSOCIATION	9
Report of the Committee of Publication	41
Report of the Treasurer	45
Address of WILSON JEWELL, Acting President of the Association	49
Report of the Committee on Medical Education. By CHRISTOPHER C. COX, Surgeon U. S. Volunteers, of Maryland	71
Report of the Committee on Medical Literature. By CHARLES A. LEE, M. D. .	95
Diatheses: their Surgical Relations and Effects. By E. ANDREWS, A.M., M.D., Prof. of Surgery in the Medical Department of Lind University . . .	117
The American Method of Treating Joint Diseases and Deformities. By HENRY G. DAVIS, New York	139
Cases of Diarrhœa Adiposa. By JOHN H. GRISCOM, M. D., Physician of the New York Hospital	171
Report on American Necrology. By CHRISTOPHER C. COX, Surgeon United States Volunteers	183
An Inquiry into the Physiological and Medicinal Properties of the Veratrum Viride: together with some Physiological and Chemical Observations upon the Alkaloid Veratria obtained from this and other Species. Being the Prize Essay to which the American Medical Association awarded the Gold Medal for MDCCCLXIII. By SAMUEL R. PERCY, M.D., Professor of Materia Medica and Therapeutics in the New York Medical College	219
Laryngoscopic Therapy, or the Medication of the Larynx under Sight. By LOUIS ELSBERG, A.M., M.D., Lecturer on Diseases of the Throat in the University of New York, Fellow of the N. Y. Academy of Medicine, Delegate from N. Y. Med.-Chir. College	305
Plan of Organization of the American Medical Association	313
Code of Ethics of the American Medical Association	327
OFFICERS AND PERMANENT MEMBERS	343

MINUTES
OF THE
FOURTEENTH ANNUAL MEETING
OF THE
AMERICAN MEDICAL ASSOCIATION,
HELD AT CHICAGO, JUNE 2, 1863.

THE Association convened in Bryan Hall, and was called to order, at 11 o'clock A.M., by the Acting President, Dr. WILSON JEWELL, of Pennsylvania, supported by Vice-President Dr. A. B. PALMER, of Michigan. Secretaries Drs. S. G. HUBBARD, of Connecticut, and H. A. JOHNSON, of Illinois, were also present.

Prayer was offered by the Rev. R. L. COLLIER, of Chicago, after which

Dr. N. S. DAVIS, Chairman of the Committee of Arrangements, welcomed the delegates in an appropriate address, and made the following report:—

Report of the Committee of Arrangements to the American Medical Association, June 2, 1863.

The unusual duties and responsibilities which have devolved upon the Committee since the meeting at New Haven, in 1860, seem to require a brief explanation, in addition to the usual report, on this occasion.

Early in the year 1861, the usual notices for the regular meeting on the first Tuesday in June, of that year, were issued, and the Committee had made all the preliminary arrangements for its accommodation, when the sectional animosity and wickedness which had been threatening the peace of our country for several years, culminated in an open, unjustifiable, and monstrous rebellion.

In the midst of the universal excitement which followed, the Committee received numerous letters from active members of the Association, some of them embodying the action of local medical societies, all asking earnestly for a postponement of the annual meeting for one year. These letters were from every section of the Union, including the cities of Boston, New Haven, New York, Troy, Albany, Philadelphia, Cincinnati, Louisville, Nashville, St. Louis, and Detroit. A special meeting of the Committee was held, and all these letters, together with similar sentiments expressed in the medical periodicals, were submitted for examination.

Although there is nothing in the Constitution or By-Laws of the Association, authorizing either the officers or the Committee of Arrangements to postpone a regular meeting, yet the extraordinary condition of the country, and the apparent unanimity of sentiment in favor of such action, constrained the Committee reluctantly to issue a notice that the annual meeting would be postponed until the first Tuesday in June, 1862. About the time for issuing the notice for the meeting in 1862, the severe battles of Belmont, Fort Donelson, and Shiloh, followed each other with such results as to require the attention and active assistance of large numbers of the profession in the Northwest; and at a meeting of the Committee, the chairman was instructed to correspond with members of the Association in the several cities heretofore named, and obtain further advice before issuing any notices. The instruction was complied with, and of a large number of letters received in reply, all but two earnestly recommended another postponement. At a subsequent meeting, the Committee being satisfied that these letters afforded a fair index of the sentiments of the profession generally, unanimously instructed the chairman to issue notices announcing a further postponement of the meeting until the first Tuesday in June, 1863. These successive postponements were fully indorsed by almost every medical journal published in the country. No further action was taken by the Committee until February, 1863. On the 13th of that month, the chairman of the Committee received official notice from the Secretary of the Medical Society of the State of New York, that at the regular annual meeting of the Society, held in Albany during the first week in that month, a resolution had been adopted unanimously, in favor of holding a meeting of the American Medical Association at the regular time and place specified in the last notice of postponement, namely, in Chicago, on the first Tuesday in June, 1863, and requesting the Committee of

Arrangements to issue the customary notices for such meeting without delay.

About the same time the *American Medical Times*, in New York, and the *Medical and Surgical Reporter*, in Philadelphia, strongly recommended the same course of action. The Committee was convened on the evening of the 14th of February, and being satisfied that the foregoing action of the New York State Medical Society, and of the medical periodicals named, indicated a general change of sentiment in favor of resuming the regular meetings of the Association, a vote was passed unanimously, instructing the chairman of the Committee to issue the usual notices for the annual meeting of the Association, and to engage the necessary halls for its accommodation. Accordingly notices were immediately printed, and before the first of March copies had been mailed to all the medical periodicals in the country; to all the members of committees, both standing and special; and to many other members of the Association. The Committee have been gratified to find that the call for the present meeting has met the warm approval of nearly all the medical periodicals in our country, while in only *one* have they observed a decided expression of disapproval. Whether the action of the Committee has been right or wrong, judicious or injudicious, we *know* that it has been at all times dictated by one single desire, namely, to comply with the actual wishes of the profession, and to perpetuate the existence of the Association with ever increasing activity and usefulness. In the spring of 1861, persevering efforts were made by the Committee to effect an arrangement with the several important railroad lines to make some commutation of fare to such members as should attend the proposed meeting of the Association in this city. During the present season these efforts were repeated; but in both instances the uniform answer of railroad officers was, that they were prohibited by direct conventional agreement from entertaining any propositions of the kind. The Committee have been informed that at a meeting of railroad officers in Buffalo, on the 29th of April last, such influences were brought to bear as caused them to make the *Canal Enlargement Convention*, now in session in this city, an exception to the rule against commutation of fares; while all other applications for the same purpose were denied. For further information on this subject, the Committee refer to an announcement which will be made at an early hour by the local Secretary of the Association. Notwithstanding all the discouragements which have existed, the Committee are

happy to announce that the number of delegates and permanent members whose credentials have already been presented and their names enrolled, is such as to indicate a large and profitable meeting. The list of names will be read at the calling of the roll by the Secretary.

In conclusion, the Committee recommend that, after the adjournment of the meeting this afternoon, the Sessions of the Association be continued each day, as follows:—

General Sessions in Bryan Hall, from 9 o'clock A.M. to 1 o'clock P.M. Afternoon Sessions in sections, from 3 o'clock P.M. to 6 o'clock P.M., in rooms as follows:—

Section on Surgery, in Bryan Hall.

Section on Practical Medicine and Obstetrics, in Bryan Hall, No. 2.

Section on Anatomy and Physiology, in Methodist Church Block, room No. 17.

Section on Meteorology, Medical Topography, Epidemic Diseases, Medical Jurisprudence, and Hygiene, Methodist Church Block, room No. 88.

Section on Chemistry and Materia Medica, same block, room No. —.

Seats will be reserved in the gallery for ladies during all the General Sessions in Bryan Hall.

All of which is respectfully submitted.

N. S. DAVIS,
THOS. BEVAN,
E. ANDREWS,
H. W. JONES,
Committee.

On motion of Dr. CATLIN, of Connecticut, the report was accepted and adopted.

On the calling of the roll by the Secretary, the following delegates answered to their names:—

VERMONT.

<i>State Medical Society,</i>	{	J. N. STILES,
		LEWIS EMMONS,
		W. M. HUNTINGTON.

MASSACHUSETTS.

<i>State Medical Society,</i>	{	BENJAMIN CUTTER,
		APPLETON HOWE,
		ED. BARTON,
		EBEN. STONE,
		PIERSON T. KENDELL,
		JOHN HOMANS,
		JOHN C. DALTON,
		M. D. SOUTHWICK,
		E. B. ABBE,
		JOHN GREEN,
		LYMAN BARTLETT.
<i>Worcester N. Dist. Med. Society,</i>		JAMES P. LYNDE.
<i>Hampshire Dist. Med. Society,</i>		JAMES DUNLAP.
<i>Boston Soc. for Med. Improvement,</i>		BENJ. E. COTTING.

CONNECTICUT.

<i>The Knight Hospital, U. S. A.,</i>		STEPHEN G. HUBBARD.
<i>New Haven Co. Med. Society,</i>	{	L. N. BEARDSLEY,
		B. H. CATLIN.
<i>Hartford City Med. Society,</i>		A. W. BARROWS.
<i>Litchfield County Med. Society,</i>		RALPH DEMING.
<i>Middlesex County Med. Society,</i>		HORACE BURR.

NEW YORK.

<i>Medico-Chirurgical College,</i>	{	HENRY G. DAVIS,
		JULIUS HOMBERGER.
<i>N. Y. Pathological Society,</i>		G. FURMAN.
<i>Albany Medical College,</i>	{	ALDEN MARCH,
		JAS. McNAUGHTON.
<i>State Medical Society,</i>	{	DANIEL P. BISSEL,
		JAMES S. WHALEY,
		THOS. C. BRINSMADE,
		HOWARD TOWNSEND,
		H. S. DOWNS,
		C. V. BARNETT.
<i>Otsego County Medical Society,</i>		J. S. SPRAGUE.
<i>Buffalo Medical Association,</i>		C. C. F. GAY.
<i>Erie County Medical Society,</i>	{	EDWARD STORCK,
		H. NICHELL,
		E. TOBIE,
		C. C. WYCKOFF,
		C. W. HARVEY.

<i>N. Y. Academy of Medicine,</i>	EDMOND S. F. ARNOLD.
<i>Canandaigua Medical Society,</i>	E. W. CHEENEY.
<i>N. Y. County Medical Society,</i>	{ W. N. BLAKEMAN,
<i>New York Hospital,</i>	{ ALFRED UNDERHILL.
<i>Permanent Members.</i>	{ JOHN H. GRISCOM.
	{ L. B. COTES,
	{ N. K. FREEMAN.
<i>Niagara County Med. Society,</i>	B. L. DELANO.

NEW JERSEY.

<i>State Medical Society,</i>	{ WM. PIERSON, JR.,
	{ JOHN BLANE.
<i>Sussex County Med. Society,</i>	D. M. SAYRE.
<i>Hunterdon Co. Med. Society,</i>	I. S. CRAMER.

DELAWARE.

<i>State Medical Society,</i>	{ H. F. ASKEW,
	{ JAMES COUPER.

PENNSYLVANIA.

<i>Philadelphia Co. Med. Society,</i>	{ WILSON JEWELL,
	{ WM. MAYBURY.
<i>Medical Society of City of Reading</i>	{ EDWARD WALLACE.
<i>and County of Berks,</i>	
<i>State Medical Society,</i>	B. RICHARDSON.
<i>Wayne Co. Med. Association,</i>	JOHN R. THOMAS.
<i>Bradford Co. Med. Society,</i>	{ E. H. MASON,
	{ DANIEL HOLMES.
<i>Susquehanna Co. Med. Society,</i>	W. L. RICHARDSON,
<i>Northern Med. Association,</i>	S. N. TROTH.
<i>York Army Hospital,</i>	HENRY PALMER.

VIRGINIA.

<i>Permanent Member,</i>	J. C. HUPP.
<i>Med. Department Army,</i>	R. H. GILBERT.

OHIO.

<i>Wayne Co. Med. Society,</i>	{ W. S. BATTLES,
	{ J. M. TAGGERT.
<i>Toledo Medical Association,</i>	W. W. JONES.
<i>Erie County Med. Society,</i>	A. H. AGARD.

<i>State Medical Society,</i>	K. G. THOMAS.
<i>Academy of Medicine,</i>	{ S. O. ALMY,
	{ W. B. DAVIS.
<i>Medical College of Ohio,</i>	L. M. LAWSON.
<i>Permanent Members,</i>	{ W. C. HALL,
	{ C. McDERMOT.

INDIANA.

<i>State Medical Society,</i>	{ B. S. WOODWORTH,
	{ A. M. VICKEY,
	{ JAMES F. HIBBARD,
	{ S. A. FREEMAN.
<i>Allen County Med. Association,</i>	A. J. ERWIN.
<i>Wayne Co. Med. Association,</i>	{ A. B. FERRIS,
	{ L. D. PERSONETT.
<i>New Castle Med. Association,</i>	SAML. JENIS.
<i>Member by Invitation,</i>	L. D. GLAZEBROOK.
<i>Permanent Members,</i>	{ R. O. CRANDALL,
	{ J. B. BUCHELL,
	{ T. HIGDAY,
	{ H. K. DEAN.

ILLINOIS.

<i>Chicago Eye and Ear Infirmary,</i>	E. L. HOLMES.
<i>City Hospital,</i>	{ GEO. K. AMERMAN,
	{ J. P. ROSS.
<i>Mercy Hospital,</i>	EDMUND ANDREWS.
	{ JOHN TEN BROOK,
	{ DAVID PRINCE,
	{ N. WRIGHT,
	{ M. F. DEWITT,
	{ S. W. NOBLE,
<i>State Medical Society,</i>	{ F. B. HALLER,
	{ H. NOBLE,
	{ A. J. CRANE,
	{ T. D. FITCH,
	{ LUCIUS CLARK,
	{ L. P. TIBBETTS.
<i>McLean County Med. Society,</i>	{ C. R. PARKS,
	{ T. D. FISHER,
	{ T. F. WORRELL.

<i>Hancock Medical Association,</i>	{	GEO. W. HALL, DANL. PIERSON, A. SPITLER.
<i>Peoria Medical Society,</i>	{	E. ANDREWS, C. D. RANKIN.
<i>Bureau County Med. Society,</i>	{	W. O. CHAMBERLAIN, C. C. LATTIMER, WM. ROBINSON.
	{	R. ROUSE, S. WICKERSHAM, H. A. JOHNSON, ORRIN SMITH, HIRAM NANCE, A. L. MERRIMAN, VAN COURTLAND SECORD, H. WEBSTER JONES, DANIEL D. BRENGLE, THOS. BEVAN, H. N. HURLBUT, SILAS EARLE, J. MACALLISTER, S. R. HAVEN, J. S. KING, E. C. GARDNER, WM. H. BYFORD, H. B. BROWN, J. A. BROWN, D. F. CROUSE, NEILS P. PATERSON, M. PARKER, W. R. FOX, GRANVILLE S. THOMAS, J. W. BROOKS, JNO. S. PASHLEY, CHAS. WHITE, C. M. CLARK, HORATIO HITCHCOCK, L. F. WARNER, L. P. CHEENEY, C. W. SHUMWAY, M. O. HEYDOCK,
<i>Permanent Members,</i>	{	

<i>Permanent Members,</i>	{	N. S. DAVIS, JOSEPH PERRY, H. C. ROBBINS.
<i>Esculapian Society,</i>	{	E. A. STEELE, CHARLES GORHAM.
<i>Chicago Medical Society,</i>	{	A. FISHER, IRA HATCH, GERHARDT PAOLI, D. M. TUCKER.
<i>Will County Medical Society,</i>		M. J. JOHNSON.
<i>Chicago Medical College,</i>	{	J. H. HOLLISTER, HENRY WING.
<i>Dewitt County Medical Society,</i>	{	T. K. EDMISTON, J. J. LAKE.
<i>Henry County Medical Society,</i>		S. T. HUME.
<i>Boon County Medical Society,</i>		D. E. FOOTE.
<i>Cook County Charity Hospital,</i>		G. M. FOX.
<i>Members by Invitation,</i>	{	J. H. FOSTER, L. P. FITCH, HENRY DURHAM, L. T. HEWINS, C. V. BARNETT, W. G. MILLER.
	{	WALTER HAY, JOHN BARTLETT, R. C. HAMILL, V. L. HURLBUT, W. W. SEDGWICK,
<i>Permanent Members,</i>	{	E. C. LARDNER, J. B. SAMUEL, DAVID DODGE, HIRAM WANZER, C. TRUESDELL, E. G. DUFFIELD.
<i>Medical Department U. S. A.</i>	{	A. R. TERRY, JOHN B. PORTER.
<i>U. S. Hospital,</i>		SURG. RALPH N. ISHAM.

MICHIGAN.

<i>Michigan University,</i>		A. B. PALMER.
<i>St. Joseph Co. Med. Society,</i>	{	EDWARD A. EGERY, S. D. RICHARDSON,

<i>Michigan Insane Asylum,</i>	HOMER D. HITCHCOCK.
<i>U. S. Marine Hospital,</i>	LEWIS DAVENPORT.
<i>Permanent Member,</i>	E. W. JENKS.
<i>Member by Invitation,</i>	I. SNYDER.

WISCONSIN.

<i>State Medical Society,</i>	{ CHARLES L. STODDARD, E. S. CARR.
<i>Permanent Members,</i>	{ H. ADAMS, HARMON VAN DUZEN, GEO. D. WILBER, S. W. BICKNELL.
<i>Racine Medical Association,</i>	JOHN G. MEACHEM.
<i>Members by Invitation,</i>	{ C. H. TAGGART, R. B. TREAT.

IOWA.

<i>State Medical Society,</i>	J. W. H. BAKER.
<i>Dubuque Medical Society,</i>	{ SAM. C. LAY, JOSEPH SPRAGUE.
<i>Iowa University,</i>	D. L. MCGUGIN.
<i>Permanent Member,</i>	L. H. CARY.
<i>General Hospital, Keokuk,</i>	M. K. TAYLOR.

MISSOURI.

<i>Palmyra Medical Association,</i>	T. J. MENDENHALL.
-------------------------------------	-------------------

KANSAS.

<i>Leavenworth Medical Society,</i>	C. A. LOGAN.
<i>Permanent Members,</i>	{ D. W. STORMONT, TIFFIN TINKS.

TENNESSEE.

<i>Permanent Member,</i>	W. K. BOWLING.
--------------------------	----------------

MARYLAND.

<i>Medical Department, U. S. A.</i>	{ SURG. C. C. COX U. S. V. SURG. J. SIMPSON, U. S. A.
-------------------------------------	--

DACOTAH TERRITORY.

<i>Permanent Member,</i>	WM. JAYNE.
--------------------------	------------

Dr. JOHNSON, of Illinois, one of the Secretaries, invited the delegates to attend the sittings of the National Canal Convention, now in session in this city, and inscribe their names as delegates to it, and thereby receive free tickets for their return home.

The invitation was accepted.

A recess of ten minutes was taken for the purpose of naming one from each State represented as a Committee on Nominations.

On reassembling the following named gentlemen were appointed as such committee:—

J. N. STILES, of Vermont,	H. O. HITCHCOCK, Michigan,
JOHN HOMANS, Massachusetts,	D. W. STORMONT, Kansas,
L. N. BEARDSLEY, Connecticut,	JOHN C. HUPP, Virginia,
JAS. McNAUGHTON, New York,	J. W. H. BAKER, Iowa,
JOHN BLANE, New Jersey,	H. VAN DUZEN, Wisconsin,
H. F. ASKEW, Delaware,	H. NOBLE, Illinois,
W. S. BATTLES, Ohio,	W. K. BOWLING, Tennessee,
JAS. F. HIBBARD, Indiana,	JOSIAH SIMPSON, Army,
WM. MAYBERRY, Pennsylvania,	C. C. COX, Maryland.

On motion of Dr. N. S. DAVIS, of Illinois, the Association listened to the Address of the acting President, on his retiring from office, and—

On motion of Dr. SPRAGUE, of New York, the thanks of the Association were tendered to Dr. JEWELL, for his “eloquent, patriotic, and scientific address,” and a copy was requested for publication.

On motion of Dr. GRISCOM, of New York, it was—

Resolved, That the thanks of the Association are eminently due to Dr. JEWELL, the late acting President, for the able and dignified manner in which he has discharged the duties of that office.

The Chairman of the Committee of Arrangements reported the names of the following gentlemen, as candidates for permanent members:—

Name.	Post Office Address.	State.
WALTER HAY,	Chicago,	Illinois.
THOMAS BEVAN,	Chicago,	Illinois.
E. C. GARDNER,	Vermont,	Illinois.
G. W. BICKNELL,	Beloit,	Wisconsin.
JOHN MACALESTER,	Chicago,	Illinois.
JOHN BARTLETT,	Chicago,	Illinois.
E. W. JENKS,	Sturgis,	Michigan.

Name.	Post Office Address.	State.
M. O. HEYDOCK,	Chicago,	Illinois.
HENRY DURHAM,	La Salle,	Illinois.
SILAS EARLE,	Onarga,	Illinois.
NIELS P. PETERSON,	Chicago,	Illinois.
R. C. HAMILL,	Chicago,	Illinois.
W. W. SEDGWICK,	Sandwich,	Illinois.
H. N. HURLBUT,	Chicago,	Illinois.
V. S. HURLBUT,	Chicago,	Illinois.
H. WEBSTER JONES,	Chicago,	Illinois.

Candidates for membership by *invitation*, being from localities not represented by any Medical Society:—

Name.	Post Office Address.	State.
A. L. MERIMAN,	Sandwich,	Illinois.
L. G. GLAZEBROOK,	St. Pierre,	Indiana.

And they were unanimously elected.

On motion of Dr. PIERSON, of New Jersey, it was—

Resolved, That a committee be appointed to prepare appropriate resolutions respecting the death of the late President of this Association, Dr. ELI IVES, of Connecticut.

The Chair appointed, as such committee, Drs. PIERSON, of New Jersey, BEARDSLEY and CATLIN, of Connecticut, and CUTTER, of Massachusetts.

The Association adjourned until 3 o'clock P. M.

AFTERNOON SESSION. FIRST DAY.

The acting President named, as the Committee on Voluntary Communications, Drs. MARCH, of New York, MAYBERRY, of Pennsylvania, BYFORD, of Illinois, MENDENHALL, of Missouri, and LAWSON, of Ohio.

The Report of the Treasurer was read by Dr. ASKEW, of Delaware.

The report was accepted, and referred to the Committee on Publication.

Dr. ASKEW also read the Report of the Committee on Publication, which was accepted.

On motion of Dr. DAVIS, of Illinois, the order of business was suspended, to enable Dr. GRISCOM, of New York, to read the report

of a rare case of "Diarrhoea Adiposa." Specimens of soap and oil candle, manufactured from the oily excretions, were exhibited.

The case was referred to Section on Practical Medicine.

The Committee on Medical Literature made no report.

Dr. MCGUGIN, of Iowa, one of the Committee on Prize Essays, reported, that a paper competing for a prize had been put into his hands; and as he was the only member of the Committee present, and its chairman had refused to act, he felt a delicacy in reporting upon the paper. He asked that an abstract might be read to the Association, and that the decision as to its merits should be made in general session.

It was read. The title being "An Inquiry into the Physiological and Medicinal Properties of the Veratrum Viride, together with some Physiological and Chemical Observations upon the Alkaloid Veratria, obtained from this and other Species."

Dr. LAWSON, of Ohio, moved its acceptance, and that the prize of one hundred dollars be awarded to its author. After discussion, the motion was adopted.

The accompanying envelope bore the inscription, "Salus populi suprema lex," which was also inscribed upon the essay.

On breaking the seal, the author's name was found to be, Dr. SAMUEL R. PERCY, of New York.

The reading of the report of the Committee on Medical Education was postponed.

The Committee on Nominations made a partial report, as follows:—

They nominate for Officers:—

PRESIDENT,

ALDEN MARCH, *of New York.*

VICE-PRESIDENTS.

JAMES COUPER, <i>of Delaware,</i>	C. C. COX, <i>of Maryland,</i>
DAVID PRINCE, <i>of Illinois,</i>	E. S. CARR, <i>of Wisconsin.</i>

TREASURER.

CASPAR WISTER, *of Pennsylvania.*

Their report was adopted.

The acting President appointed as a committee to escort the

President elect to the chair, Drs. BRINSMADE, of New York, and WALLACE, of Pennsylvania.

As an escort for the Vice-Presidents, Drs. GRISCOM, of New York, PIERSON, of New Jersey, CUTTER, of Massachusetts, EDMISTON, of Illinois, K. G. THOMAS, of Ohio, WICKERSHAM and HOLLISTER, of Illinois, and RICHARDSON, of Michigan.

The new officers having taken their places upon the stage, the President called for the reports of Special Committees.

Committee on Puerperal Tetanus, &c., Dr. MCGUGIN, of Iowa, reported progress, and was, at his request, continued until next year.

Committee on Hygienic Relations of Air, Dr. COX, of Maryland, reported progress, and was continued.

Committee on Practical Working of the United States Laws in relation to the Inspection of Drugs and Medicines, Dr. E. R. SQUIBB, of New York, requested to be continued.

Committee on Effects of Stimulants in treatment of Fractures, Dr. J. W. RUSSELL, Ohio, continued.

Committee on Use and Abuse of Pessaries, Dr. A. K. GARDNER, of New York, was continued.

Committee on Necrology, Dr. C. C. COX, Maryland, continued.

Dr. COUPER, of Delaware, read a letter from Dr. BOWDITCH, of Massachusetts, Chairman of Committee on Hunter Memorial, which was ordered to be placed on file.

Dr. COUPER offered the following resolution:—

Whereas, A communication has been received by this Association from Dr. HENRY I. BOWDITCH, of Massachusetts, Chairman of the Committee on the Hunter Memorial, giving a statement of the Fund and desiring the direction of this body as to the use to be made of certain funds still remaining in his hands: therefore,

Resolved, That Dr. BOWDITCH be requested to cause any funds so remaining to be securely invested, in the name of HENRY I. BOWDITCH, M. D., Trustee of the Hunter Memorial, with a view to its accumulation; and that when the interest accruing upon this investment shall prove sufficient, it shall be used in awarding prizes, to be called the Hunter Prizes, and adjudged by the American Medical Association, to the authors of such meritorious essays on surgical subjects as may be deemed worthy of this distinction: *Provided*, That if any contributor to this fund is unwilling that his contribution be so used, Dr. BOWDITCH is at liberty to refund to him his contribution.

The Chairman of Committee of Arrangements proposed as permanent members the following gentlemen, and they were elected:—

Name.	Post Office.	State.
DANIEL B. BRENGLE,	Winchester,	Illinois.
VAN COURTLAND SECORD,	Galva,	Illinois.
J. B. SAMUEL,	Carrollton,	Illinois.
DAVID DODGE,	Chicago,	Illinois.
JAMES S. KING,	Lemont,	Illinois.
D. F. CROUSE,	Mt. Carroll,	Illinois.

Dr. LAWSON, of Ohio, offered the following resolution in relation to Order of the Surgeon General, prohibiting the use of Calomel and Antimony in the Army:—

Resolved, That a committee of one from each State represented in this Association, be appointed to inquire into a recent order issued by the Surgeon General of the United States Army, in which the further supply of Calomel and Antimony is prohibited, and to report at as early a period as may be convenient, during the present session.

The resolution was passed, and the following Committee, in accordance with the resolution, was named by the Chair:—

Dr. LAWSON, of Ohio, <i>Chairman</i> ,	Dr. WOODWORTH, Indiana,
" STILES, of Vermont,	" WING, Illinois,
" DALTON, Massachusetts,	" PALMER, Michigan,
" CATLIN, Connecticut,	" VAN DUZEN, Wisconsin,
" BRINSMADE, New York,	" MCGUGIN, Iowa,
" PIERSON, New Jersey,	" MENDENHALL, Missouri,
" ASKEW, Delaware,	" LOGAN, Kansas,
" WALLACE, Pennsylvania,	" BOWLING, Tennessee.
" HUPP, Virginia,	

On motion of Surgeon C. C. Cox, it was

Resolved, That a committee of five be appointed by the Chair, to draft a memorial to Congress, asking the enactment of a law by which Surgeons in the service of the Army of the United States may be accorded relative rank in the same.

Resolved further, That each member of the Association be urgently invited to use his influence with the member of Congress from his respective district, to urge the passage of a law, at the coming session of Congress, favorable to this subject.

The following Committee upon the subject was named by the Chair:—

Committee.—Dr. MCGUGIN, Iowa, *Chairman*,
 “ S. G. HUBBARD, Connecticut,
 “ WILSON JEWELL, Pennsylvania,
 “ WICKERSHAM, Illinois,
 “ PRINCE, Illinois.

Adjourned to 9 o'clock to-morrow morning.

MORNING SESSION. SECOND DAY.

Association was called to order at 9 o'clock A. M., by the President, Dr. ALDEN MARCH, of New York.

The minutes of the preceding day, having been read by the Secretary, were approved.

The Chairman of Committee of Arrangements read the names of members who have been registered since the last report.

He also proposed the following gentlemen as members by invitation:—

Name.	Post Office.	State.
J. H. FOSTER,	Libertyville,	Illinois.
W. G. MILLAR,	Rockford,	Illinois.

And the following as permanent members:—

Name.	Post Office.	State.
TIFFIN SINKS,	Leavenworth,	Kansas.
W. C. THALL,	Fayetteville, Brown Co.,	Ohio.
HIRAM WANZER,	Chicago,	Illinois.
H. K. DEAN,	Manckport,	Indiana.
H. C. ROBBINS,	Newark,	Illinois.
E. J. DUFFIELD,	Woodstock,	Illinois.
W. JAYNES,	Yankton,	Dacota Ter'y.
C. M. CLARK,	Galva,	Illinois.

They were elected.

On motion of Dr. JEWELL, of Pennsylvania, Dr. J. MACGOWAN, an eminent medical missionary from China, was elected a member by invitation, and invited to take a seat with the Association.

Dr. MACGOWAN being desirous of addressing the Association on the state of medicine in China, on motion of Dr. GRISCOM, of New York, he was invited to do so, during the first half hour of the afternoon session.

The Report of the Committee on Medical Education was made the special order this afternoon, directly after Dr. MACGOWAN'S remarks.

Committee on Nominations made a further report, in which Baltimore was recommended as the place of next meeting.

Report was accepted.

Dr. H. S. DOWNS, of New York, moved to amend, by substituting the word "New York" for "Baltimore." The vote being doubted, a count was called for, and resulted in showing in the affirmative 65, and in the negative 43.

The amendment was adopted.

On motion of Dr. COX, of Maryland, the vote was made unanimous.

On motion of Dr. GRISCOM, of New York, the remainder of the report was referred back to the Committee.

Dr. DAVIS, of Illinois, read a communication from Dr. BOWDITCH, of Massachusetts, respecting the necessity for the organization of an ambulance system for the army, accompanied by a pamphlet upon the subject, distributed among members.

Dr. HOMANS, of Massachusetts, moved that a committee of one from each State represented be formed, to memorialize the President of the United States upon the subject referred to by Dr. BOWDITCH. Passed.

The following Committee was named by the President:—

Dr. EMMONS, Vermont,	Dr. J. F. HIBBARD, Indiana,
Dr. J. MASON WARREN, Mass.,	Dr. A. B. PALMER, Michigan,
Dr. GRISCOM, New York,	Dr. LUCIUS CLARK, Illinois,
Dr. HUBBARD, Connecticut,	Dr. E. S. CARR, Wisconsin,
Dr. PIERSON, JR., New Jersey,	Dr. SPRAGUE, Iowa,
Dr. COUPER, Delaware,	Dr. MENDENHALL, Missouri,
Dr. TROTH, Pennsylvania,	Dr. C. A. LOGAN, Kansas,
Dr. HUPP, Virginia,	Dr. BOWLING, Tennessee,
Dr. S. O. ALMY, Ohio,	Surg. SIMPSON, Army.

Chairman, Dr. GRISCOM, of New York.

Dr. HIBBARD, of Indiana, offered the following resolution concerning compulsory vaccination:—

Resolved, That a committee of three be appointed, to inquire into the expediency of making vaccination of every person in the United

States a compulsory measure ; and, if found expedient, that it report a plan to carry the measure into effect.

Which was passed.

The Committee on Resolutions concerning the death of the late President, Dr. ELI IVES, reported the following resolutions:—

Whereas, It has pleased the Divine Ruler of all events to take from our midst one of the most distinguished and venerable members of our profession, ELI IVES, of New Haven, Connecticut, the late President of this Association ; a man full of years and honors. And whereas, it becomes us at all times to bow submissively to the righteous will of the Almighty, believing that he "doth all things well:" therefore,

Resolved, That in the death of ELI IVES this Association has lost a firm friend, an ardent advocate for the elevation and dignity of the science of medicine; the profession one of its most highly gifted members, and society at large one of its brightest ornaments.

Resolved, That while we mourn the dispensation that has deprived us of the presence and council of our late venerated President, we condole with his bereaved family in the severe loss they have sustained.

Resolved, That a copy of the foregoing preamble and resolutions be forwarded to the family of the late ELI IVES, signed by the President and Secretary, as an expression of the sympathies of this Association.

WM. PIERSON, Jr.
L. N. BEARDSLEY,
B. H. CATLIN,
E. CUTTER,

Committee.

On motion of Dr. BYFORD, of Illinois, the rules were suspended, in order that the voluntary communications might be read.

He also moved, that all papers that have been referred to sections be read in general sessions, and that the meetings in sections be dispensed with.

Dr. MAYBERRY, of Pennsylvania, Chairman of the Committee on Voluntary Communications, reported an abstract of a paper by Dr. Andrews, of Illinois, on "Diatheses in their Surgical Relations," which was read by the author, and, after discussion, referred to Committee on Publication.

The President named, as the Committee on Compulsory Vaccination, Drs. HIBBARD, of Indiana, JEWELL, of Pennsylvania, and GRISCOM, of New York.

On motion of Dr. DAVIS, of Illinois, the Association adjourned to three o'clock P. M., for the transaction of general business.

AFTERNOON SESSION. SECOND DAY.

The minutes of the morning session were read and approved.

Dr. J. MACGOWAN, Medical Missionary in China, addressed the Association respecting the state of medical science in that empire.

On motion of Dr. COX, of Maryland,

Dr. T. O. EDWARDS, of Chicago, was invited to a seat on the platform.

On motion of Dr. HUBBARD, of Connecticut,

Dr. JONATHAN W. BROOKS, of Chicago, was elected a permanent member.

The Chairman of the Committee of Arrangements read the list of the new arrivals of delegates since the last report. He also proposed the following gentlemen as permanent members:—

Name.	Post Office.	State.
J. B. BUCHELL,	South Bend,	Indiana.
CALVIN TRUESDELL,	Rock Island,	Illinois.
W. R. FOX,	Wilmington,	Illinois.
L. F. WARNER,	Chicago,	Illinois.
M. PARKER,	Chicago,	Illinois.

And the following as members by invitation:—

Name.	Post Office.	State.
L. T. HEWINS,	Oak Alla,	Illinois.
C. J. TAGGART,	Beloit,	Wisconsin.

Who were elected.

The Report of the Committee on Medical Education, Dr. Cox, of Maryland, Chairman, which had been postponed from the morning session, was now read with accompanying resolutions.

The resolutions having been moved separately, the first resolution was taken up and discussed, and after some amendments proposed by Dr. WING, of Illinois, was passed.

The second resolution was adopted.

The third resolution was adopted.

The fourth resolution was adopted.

The report and resolutions were then adopted as a whole, and referred to the Committee on Publication.

The resolutions are as follows:—

Resolved, That a thorough preliminary education in English, Latin, mathematics, and physics, constitutes an essential pre-requisite to the admission of a student of medicine into the office of a medical preceptor, or as a matriculant of a respectable medical college.

Resolved, That the advancement of medical education demands a more extended and symmetrical course of instruction in the colleges, and a more thorough and impartial examination for the degree of doctor of medicine than at present prevail.

Resolved, That Medical Jurisprudence and Hygiene are highly important branches of Medical Science, deserving the careful consideration of all medical teachers and schools.

Resolved, That societies for medical improvement—State, district, and county—are important auxiliaries to the advancement and promotion of science, and are therefore highly recommended by this body, as valuable levers in the cause of medical education.

The Committee on the order of the Surgeon General, respecting the use of Calomel and Antimony in the army, made a report.

Dr. BISSELL, of New York, moved its adoption. After discussion it was laid on the table, in order to take up the report of the minority of the Committee. Dr. WOODWORTH, of Indiana, moved its adoption with an appended resolution.

It was ruled out of order, and the report of the Committee was taken from the table.

Pending the discussion upon a motion to adopt it the Association adjourned.

THIRD DAY, MORNING SESSION.

The Association was called to order at 9 o'clock by the President.

On motion, Dr. GREEN, of Massachusetts, was invited to a seat on the platform.

The Committee of Arrangements reported, recommending as members, by invitation, Drs. ISAAC SNYDER, of Jackson, Mich., R. B. TREAT, of Janesville, Wis.; and as permanent members, Drs. GRANVILLE S. THOMAS, of Joliet, Ills., and J. S. PASHLEY, of Ills.

They were elected.

Dr. COX, of Maryland, offered the following, which, on motion, was adopted :—

Resolved, That the expression of our sincere sympathies is due Dr. WILSON JEWELL, late presiding officer of this Association, in the unexpected and distressing domestic bereavement which has suddenly terminated his participation in the labors of this session ; and that the Secretaries be authorized to communicate the same to that gentleman at their earliest convenience.

The regular order of business was then taken up.

Dr. GILBERT, of the Army, in behalf of Dr. SUCKLEY, Committee on the gradual extinction of the Aboriginal races, reported progress, and, on motion, the Committee was continued another year.

The President announced the report of the Committee on Order No. 6 of the Surgeon General to be in order.

Dr. HIBBARD, of Indiana, offered a substitute, which was lost. After quite a lengthy discussion, the report of the Committee was, on motion of Dr. SPRAGUE, of New York, accepted.

Amendments were offered by Dr. SPRAGUE, of New York, Dr. HIBBARD, of Indiana, Dr. GRISCOM, of New York, all of which were lost, and the resolutions, as reported by the Committee, were adopted unanimously.

The report is as follows :—

The Committee to whom was referred the subject of the recent Circular, No. 6, issued by the Surgeon General of the U. S. Army, submit the following report. The Circular referred to is in the following language :—

“I. From the reports of Medical Inspectors, and the Sanitary reports to this office, it appears that the administration of calomel has been so frequently pushed to excess, by military surgeons, as to call for prompt steps, by this office, to correct the abuse ; an abuse, the melancholy effects of which, as officially reported, have exhibited themselves, not only in innumerable cases of profuse salivation, but in the not unfrequent occurrence of mercurial gangrene.

“It seeming impossible in any other manner to properly restrict the use of this powerful agent, it is directed that it be struck from the Supply Table, and that no further requisitions for this medicine be approved by medical directors. This is done with the more confidence, as modern pathology has proved the impropriety of the

use of mercury in very many of those diseases in which it was formerly unfailingly administered.

"II. The records of this office having conclusively proved that disease, as prevalent in the army, is treated as efficiently without tartar emetic as therewith, and the fact of its remaining on the supply table being a tacit invitation to its use, tartar emetic is also struck from the supply table of the army.

"No doubt can exist that more harm has resulted from the misuse of both of these agents, in the treatment of disease, than benefit from their proper administration.

W. A. HAMMOND,
Surgeon General."

The obvious import of the Circular is that the army surgeons have been guilty of gross malpractice in the profuse and reckless employment of calomel, and to prevent further injury the article will no longer be supplied for their use. This conclusion on the part of the Surgeon General we regard as entirely unwarranted. It is not questioned by him that calomel may not, under some circumstances, be productive of good, nor that it may not, when properly administered, save life; and yet on the assumption that injudicious and reckless surgeons have abused the use of the agent, its further employment shall be discontinued even by the most careful surgeons. The Committee believe from the evidences in their possession, that the charge of wholesale malpractice made by the Surgeon General is unjust to the army surgeons. The Committee have collected numerous statistics bearing on this question, embracing many departments of the army and numerous hospitals, but the want of time will prevent more than the following statements. The hospitals of Cincinnati and its vicinity have furnished about 25,000 cases of disease and injury, and in that number only nine cases of ptyalism have occurred, or 1 in 2,700, and none of a severe character, nor any case of gangrene. A communication from a reliable member of the profession, of Louisville, Kentucky, states that in an extensive field of observation in that city, in the military hospitals, no case of ptyalism was witnessed. Dr. Muscroft says: "I have been in the service eighteen months in Western Virginia, Kentucky, and Tennessee, and have seen no case of salivation or abuse of mercury; a part of the time I have acted as Medical Director of a division of the army."

Dr. G. C. Blackman says: "I have seen as many hospitals and

battle-fields as any man in the army. I was a long time Medical Director in General Mitchell's Division; was two months at General McClellan's head-quarters on the Peninsula, inspected General Franklin's Division; yet saw nor heard of any mercurial salivation or gangrene."

Dr. Mendenhall says: "I recently inspected for the United States Sanitary Commission the hospitals at Washington, and the field hospitals of the army of the Potomac, and, although my attention was directed to the effects of mercury as a remedy, yet I neither saw nor heard of any case of salivation."

Drs. Judkins and Comegys state that they acted as Sanitary Inspectors for New York City and vicinity, but saw no case of salivation or gangrene.

Dr. Sexton, who has been over a year in the army of Western Virginia, saw no case of ptyalism.

Dr. A. B. Palmer states: In July, 1862, he visited nearly every hospital at Fortress Monroe, Washington, Alexandria, Georgetown, Baltimore, Philadelphia, New York, Brooklyn, and Burlington, &c. &c.; that he particularly examined into the condition of all soldiers from Michigan, and saw in the wards very many other cases, and that he does not remember to have seen a single case of salivation in all the thousands observed.

Dr. W. K. Bowling states: Was in charge of hospital No. 10 in Nashville, Tennessee, for thirteen months, and was more or less familiar with twenty odd hospitals in that city, and never during that period saw, in his own or other hospitals, a single case of ptyalism or mercurial gangrene.

Dr. David Prince, one of the Vice-Presidents of this Association, states: Was in the volunteer service of the United States as Brigade Surgeon, one year, having extensive observation of the treatment of injuries and diseases, by medical officers of all grades, and he did not in that period see or hear of any case of salivation in any injurious degree.

These statistics and statements justify the belief that the Surgeon General has given credence to misrepresentations, and has thereby done great and inexcusable injustice to a noble, humane, scientific, and self-sacrificing profession.

If, indeed, it should prove true that some surgeons have been guilty of this alleged hideous malpractice, the preceding statements prove that it is not general in the army, and hence the proper course would be, not to withhold the agent from the innocent as

well as the guilty parties, but to dismiss the delinquent as unworthy a place in the army.

The statement made by the Surgeon General, that the diseases prevalent in the army may be treated as efficiently without tartar emetic as therewith, is doubtless a pure assumption, for it can scarcely be possible that, in the present state of confusion, statistics have accumulated to a sufficient extent and with a degree of accuracy which would justify such a sweeping conclusion. Statistics in practical medicine are generally more or less doubtful, often fallacious, and always demand the utmost precautions to prevent serious errors. But even if the facts are such, in relation to tartar emetic, as stated by the Surgeon General, it is not alleged that the agent has been productive of injury, and hence it would be the part of wisdom to permit the surgeon to decide the question for himself, and not be restricted in the use of a medicine which he may conceive to be necessary for the restoration of his patient.

It is not our province to argue the intrinsic nor comparative merits of calomel and antimony, but we may say in truth and justice, that no two agents in the *Materia Medica* have received more attention than these. None have been more extensively employed, and in no instances have clinical experience and observation more clearly and definitely marked the results; and the deliberate judgment of almost the entire profession is, that mercury and antimony are most invaluable medicinal agents. It is not claimed that there is perfect uniformity of opinion in relation to the powers of these agents, but the differences are not greater than occurs in relation to all other medicines. Perfect uniformity of opinion could not be anticipated, and yet the belief is universal, that these agents are extremely valuable. Now if all these opinions—emanating as they do from the most learned and gifted of our profession—are wholly unfounded, if the accumulated observations of centuries are false and worthless, we may at once bid farewell to practical medicine, and leave disease to pursue her unmolested course to destruction.

Finally, viewing the question before us in every possible light, we believe that the Surgeon General has committed a most grievous offence against the dignity, usefulness, and humanity of our profession; that he has heaped unmerited *insult* on an intelligent, scientific, and humane corps of Army Surgeons; that he has injured, in a most serious manner, the regular profession. We regard the order as an unwarrantable assumption of authority, and a reckless

attempt to cut the Gordian knot of intricate pathology by the exercise of official power.

Resolved, 1. That this Association condemns, as unwise and unnecessary, the Circular of the Surgeon General, prohibiting the further supply of calomel and tartar emetic for use in the army, and that we regard such an order as an indignity to the military surgeons, while it is in direct opposition to the opinions of the regular profession of medicine.

Resolved, 2. That the withholding ordinary medicines from the Army Surgeons implies a want of confidence in their skill as a body, which, if true, calls for the prompt interposition of the proper authorities; but if the imputation of a want of skill is unfounded, as we believe it is, the refusal to supply proper medicines is wholly unjustifiable.

Resolved, 3. That Circular No. 6, being impolitic and prejudicial to the interests of the service, it is the decided sense of this Association, that a due regard for the welfare of the army requires, and we do therefore earnestly recommend, the revision of that circular and the substitution of the more just and philosophical method of correcting abuses, if any exist, by holding each surgeon individually responsible for the proper discharge of his appropriate duties.

L. M. LAWSON, *Chairman*.

A letter from the Chairman of the Committee on Medical Literature was read, requesting permission to present the report directly to the Committee on Publication for publication in the *Transactions*. The request was granted.

The Committee on Nominations reported as follows:—

SECRETARIES.

Dr. H. A. JOHNSON, *Illinois*,

Dr. GUIDO FURMAN, *New York*.

Committee of Arrangement.—Drs. JAMES ANDERSON, N. BLAKEMAN, T. M. MARKOE, THOMAS C. FINNELL, AUSTIN FLINT, Jr., E. S. F. ARNOLD, JOHN H. GRISCOM.

Committee on Prize Essays.—Drs. D. F. CONDIE, Pennsylvania; ED. WALLACE, Pennsylvania; WILSON JEWELL, Pennsylvania; E. R. PEASLEE, New York; ALFRED STILLE, Pennsylvania.

Committee on Medical Education.—Drs. JOHN C. DALTON, Jr., New York; M. L. LINTON, Missouri; JOHN FRISSELL, Virginia; HOWARD TOWNSEND, New York; W. H. BYFORD, Illinois.

Committee on Medical Literature.—DRS. L. M. LAWSON, Ohio; E. L. MCGUGIN, Iowa; WILLIAM MAYBURY, Pennsylvania; H. NOBLE, Illinois; JOHN HOMANS, Massachusetts.

Committee on Publication.—F. G. SMITH, Chairman, Pennsylvania; CASPAR WISTER, Jr., Pennsylvania; ED. HARTSHORNE, Pennsylvania; H. F. ASKEW, Delaware; S. G. HUBBARD, Connecticut; H. A. JOHNSON, Illinois; GUIDO FURMAN, New York.

They also recommended the following:—

Committee on Insanity.—RALPH HILL, Ohio; C. H. NICHOLS, District of Columbia; DANIEL P. BISSELL, New York; S. W. BUTLER, Pennsylvania; JOHN S. BUTLER, Connecticut.

On motion of Dr. DAVIS, of Illinois, the report was adopted.

On motion of Dr. NOBLE, of Illinois, it was ordered, that a copy of the Report of the Committee on Order No. 6, of the Surgeon-General, be sent to the President, Secretary of War, and Surgeon-General of the United States.

The Committee on Voluntary Contributions reported:—

That the following contributions have been received, which the Committee recommend to be read before the Association:—

I. A paper on Diatheses: their Surgical Relations and Effects. By E. ANDREWS, M. D., Professor of Surgery in the Chicago Medical College.

II. A Case of Disappearance of the Iris behind the Lens. By JULIUS HOMBERGER, M. D., of New York, Editor of the American Journal of Ophthalmology.

III. The American Method of Treating Joint Diseases and Deformities. By HENRY G. DAVIS, M. D., New York.

IV. A Paper on the Use of Sulphites of Lime and Soda in the Treatment of Hospital Gangrene, Phlebitis, Erysipelas, and other Zymotic Diseases. By A. FISHER, M. D., of Chicago, Illinois.

All of which is respectfully submitted.

WM. MAYBURY,
W. H. BYFORD,
L. M. LAWSON,
T. J. MENDENHALL,

Committee.

CHICAGO, June 3, 1863.

On motion of Dr. HOMANS, of Massachusetts, Dr. J. C. DALTON was excused from the Committee on an Ambulance Corps, and Dr. J. M. WARREN, of Massachusetts, was appointed in his place.

Dr. DOWNS, of New York, moved that the Committee of Arrangement have the power to fill vacancies in their own body. Carried.

Dr. H. G. DAVIS, of New York, read, in part, An Essay on the American Method of Treating Joint Diseases and Deformities, which, on motion, was referred to the Committee on Publication.

Dr. HOMBERGER, of New York, in the name of Dr. ELSBERG, of New York, made a report on the use of the Laryngoscope, and exhibited instruments invented and improved by Dr. ELSBERG.

Dr. HOMBERGER also read a paper upon a case of the Disappearance of the Iris behind the Lens. The paper was referred to the Committee on Publication.

On motion of Dr. FURMAN, of New York, the paper of Dr. GRISCOM, read at a previous session, and then referred to the Section on Practical Medicine, was referred to the Committee on Publication.

Dr. FISHER, of Illinois, read a paper on the use of the Sulphites of Lime and Soda in the Treatment of Hospital Gangrene, Phlebitis, Erysipelas, and other Zymotic Diseases.

On motion of Dr. GRISCOM, of N. Y., the communication was referred to the author, and he was appointed a special committee to report on the use of these agents, at the next meeting of the Association.

Dr. COX, of Maryland, offered the following:—

Resolved, That the thanks of this Association are due, and are hereby tendered, the Faculty and citizens of Chicago, for the hospitalities extended to the members of this Association during the present session.

The resolution was adopted.

Dr. COX also offered the following, which was unanimously adopted:—

Resolved, That the thanks of this Association be tendered to Dr. S. G. HUBBARD, of Connecticut, the retiring Secretary of the Association, for the prompt and able manner in which his duties have been discharged.

The amendments proposed, at the last meeting of the Association, by Drs. BRODIE and RAPHAEL, were then called up, and, on motion, they were rejected.

On motion of Dr. GRISCOM, of New York, the first Tuesday of June was designated as the time for the next meeting of the Association.

Dr. HUPP, of Virginia, offered the following, which was adopted:—

Resolved, That the thanks of this Association are hereby tendered to the President, for the able, courteous, and dignified manner in which he has discharged the duties of the chair.

The Committee of Arrangement recommended the following as permanent members:—

Dr. S. H. CAREY, of Toledo, Iowa.

Dr. H. HITCHCOCK, of Chicago, Illinois.

Dr. L. P. CHENEY, " "

Dr. C. W. SHUMWAY, " "

On motion, they were elected.

On motion of Dr. DAVIS, of Illinois, the Association then adjourned to 3 o'clock P. M.

AFTERNOON SESSION.

The Association was called to order at 3 o'clock, by the President.

The minutes of the morning session were read and approved.

Dr. J. N. RUSSELL, of Ohio, was, by his own request, excused from the Committee on the "Use of Stimulants in the Treatment of Fractures."

Dr. A. SAGER, of Michigan, Committee on "Blood Corpuscles," was also, by his own request, excused.

Dr. N. S. DAVIS, of Illinois, moved that Section 4 of the Constitution be so amended as to permit the appointment of one permanent Secretary.

Laid over under the rule.

The Committee on Nominations made a further report as follows:—

On the Entrance of Air into the Circulation through the Uterine Sinuses.—Dr. H. O. HITCHCOCK, Michigan.

Puerperal Tetanus, its Statistics, Pathology, and Treatment.—Dr. D. L. MCGUGIN, Iowa.

Microscopic Observations of Cancer Cells.—Dr. LEONARD J. SANDFORD, Connecticut.

Hygienic Relations of Air.—Dr. C. C. COX, Maryland.

Quarantine.—WILSON JEWELL, R. LA ROCHE, Pennsylvania; HENRY G. CLARK, Massachusetts; ELISHA HARRIS, New York; HENRY WING, Illinois.

Microscope.—Dr. R. C. STILES, Vermont.

On the Practical Workings of the U. S. Law relating to the Inspection of Drugs and Medicines.—Dr. E. R. SQUIBB, New York; JOSEPH CARSON, Pennsylvania; H. I. BOWDITCH, Massachusetts.

Use and Abuse of Pessaries.—Dr. A. K. GARDNER, New York.

American Medical Necrology.—Dr. C. C. COX, Maryland.

Excision and its Connections with Conservative Surgery.—Dr. L. A. SAYRE, New York; Dr. G. W. NORRIS, Pennsylvania; Dr. G. C. BLACKMAN, Ohio.

On Military Hygiene.—Dr. E. ANDREWS, Illinois; Dr. S. G. HUBBARD, Connecticut; Surgeon R. H. GILBERT, Fortress Monroe, Va.

The report was accepted and adopted, and the Committee discharged.

On motion of Dr. HUBBARD, of Connecticut, it was ordered that the Committee on Necrology be enlarged by the addition of one from each State.

Dr. ARNOLD, of New York, offered the following:—

Whereas, The railroad is fast becoming the great medium of land travel in all parts of the world; *and whereas*, in spite of all regulations and care, serious accidents are continually occurring, attended with loss of life, which accidents are greatly aggravated by the total want of any local medical provision to meet them, as well as by the absence of any appliances whatever, calculated to strengthen the hands of the surgeon: therefore be it

Resolved, That it is expedient that such medical provision should be made by the railroads; and that, by the diminution of suffering, as well as by the saving of life, while economy would accrue to the railroad companies, the interests of humanity would be greatly served.

Dr. HUBBARD, of Indiana, offered the following amendment to the Constitution:—

That the President and Vice-Presidents elected each year, shall assume the functions of their respective offices at the beginning of the meeting of the year succeeding their election.

Laid over under the rule.

Dr. MCGUGIN, of Iowa, from the Committee appointed to memorialize Congress on the subject of according relative rank to surgeons in the army, made the following report, which, on motion, was accepted:—

The members of the American Medical Association now assembled at Chicago, June, 1863, would respectfully represent, through a committee chosen for that purpose, that in their opinion the

Medical Corps of the Army is second to none in the importance of its functions, the sacredness of its trusts, the complexity of its duties, or the severity of its labors, requiring for the full and successful compliance with these obligations, ability, faithfulness, and constancy. Your memorialists would further state, that, in the main, the obligations assumed and imposed have been faithfully performed, with no hope of promotion and with but inadequate reward.

When the importance of the duties performed by the medical corps is considered, it is the opinion of the members of this body, that the medical department of the army has been treated with neglect, because the Government has omitted to provide for the rank of surgeons as it has for officers in other departments. If it be just to reward the deserving, and to furnish a stimulus to increased effort in others; and as the rank accompanied with its powers and benefits, is that adopted by the Government with other officers, there is no well-grounded reason why such benefits should not be conferred upon army surgeons also, and why similar inducements to increased efforts should not be held out to them also, to improve in efficiency and usefulness.

The medical men, when they enter the army, submit themselves to the ordeal of an examination, and if found competent, enter the list with the rank of assistant surgeons. The expenses of preparation have been defrayed by themselves. Not so with a large majority of those of the other departments who enter the army on commission. These have been educated at public expense, and qualified by instruction at public institutions. In this particular there is a distinction which the surgeon does not enjoy, and benefits which he has not derived.

In the volunteer corps, the surgeon is usually the only officer qualified to perform his duties in a regiment or corps recently organized. He may not understand the minor details, but is, or should be, on the onset qualified to treat disease, or amputate a limb requiring removal. Not so with the other officers, field and staff, whose knowledge is acquired after the organization of the corps. During this time the want of military knowledge may cost numerous valuable lives, by a false position of his forces, by a commander. Here again is a difference in which, so far as the officers are concerned, it is in favor of the surgeon, who is the only one qualified; and yet all, even down to a lieutenant, may control his actions or embarrass him in the performance of his duties.

The highest rank (save that of the Surgeon-General, who is a Brigadier-General, and the Assistant Surgeon-General, whose rank is that of Colonel) which is known in the Medical Department, is Major, to which the surgeon, however ripe his qualifications, the severity and duration of his service, or however marked the good results of his labors, can only reach. Many now in the regular service, who have grown gray in it, have been awarded no higher rank, while others, in other departments of the service, have been promoted to positions and power where they not only rank, but actually control the surgeon; and yet, when their respective services are considered, those of the former bear no comparison, in point of importance and good results, to the latter.

This unequal and unjust disproportion of favors and benefits should not continue in a government whose genius and spirit recognizes the just principle of rewarding the worthy and meritorious who are engaged in the public service. This cold neglect is as unmerited as it is unjust, and is a cause of discouragement to those who are engaged in the service, and prevents others from entering who would do it honor.

We would therefore ask, in behalf of the profession and this Association, that justice be done to those who have spent the best portion of their lives in the service, and to those, too, who, when this unnatural internecine strife was brought upon the country, which has since been drenched with the best blood of her loyal sons, offered themselves, with their best abilities, to the service in the Medical Corps.

We ask that the surgeon be placed in rank, in all respects and upon the same footing, with other officers of the service, as an act of justice to them individually—as a boon to the profession which this Association will appreciate and acknowledge, and in order that the medical department may be offered a stimulus to a higher qualification, efficiency, and usefulness; and we will ever pray, &c.

D. L. MCGUGIN, Iowa, *Chairman*.

S. G. HUBBARD, Connecticut.

WILSON JEWELL, Pennsylvania.

S. WICKERSHAM, Illinois.

D. PRINCE, Illinois.

On motion of Dr. GRISCOM, of New York, the report was adopted, and it was ordered that the report be printed and distributed to

the members of Congress, heads of Departments, and others likely to influence action upon the subject.

Dr. WING, of Illinois, moved the following addition to the memorial, which was adopted:—

Resolved, That it be recommended that in carrying out the object of this memorial every promotion should be attended by a suitable examination into the qualifications and military record of the candidate.

The President, under the resolution, added to the Committee on Necrology the following:—

Dr. J. H. GRISCOM, New York.	Dr. D. PRINCE, Illinois.
Dr. ARNOLD, “	Dr. A. B. PALMER, Michigan.
Dr. W. PIERSON, New Jersey.	Dr. E. S. CARR, Wisconsin.
Dr. JAMES COUPER, Delaware.	Dr. D. L. MCGUGIN, Iowa.
Dr. W. MAYBERRY, Penn.	Dr. MENDENHALL, Missouri.
Dr. J. C. HUPP, Virginia.	Dr. C. A. LOGAN, Kansas.
Dr. L. M. LAWSON, Ohio.	Dr. W. K. BOWLING, Tennessee.
Dr. HIBBARD, Indiana.	Dr. J. HOMANS, Massachusetts.

Dr. HOMBERGER, of New York, offered the following, which, on motion of Dr. PRINCE, of Illinois, was referred to the Committee on Medical Education for the coming year.

Whereas, An action is appropriate to annihilate the unusual extent of quackery, which is greatly seconded by the fact that the profession, by a mistaken prejudice against specialties, discourages the endeavors of physicians of thorough education to devote their entire activity to the advancement of special branches; *and whereas*, The present state of medical science, and the rapid progress of some of its departments makes it impossible for one to follow the development of all its branches, and, therefore, render special studies of vital importance for the further improvement of medicine and surgery:—

Be it resolved, That the American Medical Association recommend to the Faculties of Medical Colleges in this country, to create Chairs of Ophthalmology, recently so importantly advanced by the invention of the ophthalmoscope and other means.

On motion of Dr. GILBERT, of New York, the Association then adjourned *sine die*.

HOSMER A. JOHNSON,	} <i>Secretaries.</i>
GUIDO FURMAN,	

REPORT

OF

THE COMMITTEE OF PUBLICATION

AND OF

THE TREASURER.

VOL. XIV.—4

REPORT OF THE COMMITTEE OF PUBLICATION.

THE Committee of Publication respectfully report:—

That an edition of eight hundred copies of Vol. XIII. was issued, in accordance with the instructions of the Association, at an aggregate cost of \$2117 68.

Of this edition, six hundred and thirty-five copies have been distributed. The items of expenses incurred will be found in the report of the Treasurer.

The following schedule exhibits the number of copies of each volume now possessed by the Association:—

Proceedings of first meeting, held at Philadelphia	37 copies.
Vol. I. Out of print (5 copies held by Association).	
Vol. II. " " " "	
Vol. III. " " " "	
Vol. IV. " " " "	
Vol. V. 	234 copies.
Vol. VI. Out of print (5 copies held by Association).	
Vol. VII. 	41 copies.
Vol. VIII. 	196 "
Vol. IX. 	227 "
Vol. X. 	142 "
Vol. XI. 	159 "
Vol. XII. 	246 "
Vol. XIII. 	130 "

All of which is respectfully submitted.

FRANCIS G. SMITH, JR., *Ch'n.*
EDWARD HARTSHORNE,
CASPAR WISTER,
H. F. ASKEW.

TREASURER'S REPORT.

THE Treasurer respectfully reports:—

That, in consequence of the disturbed state of the country, the demand for the *Transactions* of this Association has literally ceased, two copies only having been sold within the past year. Again: the expense of publishing has risen 30 per cent. since the last volume was issued.

Therefore, the Treasurer would call the attention of the Association to the imperative necessity of referring to the Committee of Publication only papers of the greatest value, and of requiring that even these should be as condensed as possible, all expensive illustrations being avoided, otherwise the Association will find it impossible to publish its *Transactions* for the present year.

By resolution, Vol. XII. now falls to \$2 00 in price, and the list of volumes for sale will read thus:—

Proceedings of first meetings in 1846-7, organizing	
the Association	50
Vols. I., II., III., IV., VI., are out of print.	
Vols. V., VII., VIII., IX., if taken collectively	\$5 00
For the set, if singly, a piece	2 00
Vol. X.	2 00
Vol. XI.	2 00
Vol. XII.	2 00
Vol. XIII.	3 00

The American Medical Association

DR.

May 31, 1863.

To cash, balance of last account	.	.	.	.	\$597 61
" " proceeds of volumes sold	.	.	.	.	1,982 25

\$2,579 86

CASPAR WISTER,
Treasurer.

in account with Caspar Wister, Treasurer.

CR.

By cash paid	Dr. S. M. Bemis for postage	\$1 00
" "	Dr. Miller for express charges	14 87
" "	for draft on Philadelphia at New Haven . .	1 50
" "	uncurrent and counterfeit money	9 00
" "	T. Cuzner, engraving and wood-cuts	65 00
" "	T. K. Collins, for printing and binding 800 copies, vol. xiii., 5 per cent. off . .	1,668 94
" "	P. S. Duval, engraving and printing maps . .	64 60
" "	D. W. C. Baxter, drawing and engraving on wood	104 50
" "	H. M. Barnes, for services as clerk	50 00
" "	insurance on volumes for 1862	12 00
" "	Blanchard & Lea, for packing boxes and expenses of delivery of volume	45 82
" "	Lindsay & Blakiston, for blank book for constitution	8 00
" "	T. K. Collins, for 1,500 circulars	6 65
" "	stationery	3 00
" "	insurance on volume for 1863	12 00
" "	postage for Treasurer	5 14
" "	postage for Committee of Publication	3 63
Balance		504 21
		<u>\$2,579 86</u>

Audited and found correct.

H. F. ASKEW,
EDWARD HARTSHORNE,
FRANCIS G. SMITH, JR.

A D D R E S S

O F

W I L S O N J E W E L L ,

ACTING PRESIDENT OF THE ASSOCIATION.

ADDRESS OF WILSON JEWELL,

ACTING PRESIDENT OF THE ASSOCIATION.

GENTLEMEN OF THE AMERICAN MEDICAL ASSOCIATION:

SINCE we last assembled in convention, two years ago, as the representative body of the medical profession in this country, the delightful union of our congress has been unexpectedly interrupted. Events, the most thrilling in the history of any nation, have transpired. The government of the United States, the mildest and most beneficent the world ever knew, has been plunged into an unnatural, causeless, and unprecedented rebellion. Our once happy and prosperous country has been involved in distress and ruin. The most endeared relations in life have been severed. The strongest ties of parental and fraternal affection alienated, while our Union, the palladium of our safety as one people, now trembles in the balance.

Nor is it less unfortunate, or less to be deplored, that this frightful national strife should have found its way into the halls of science, embarrassing their movements, limiting their usefulness, and imperilling their very existence; even our own cherished American Medical Association, an institution eschewing all politics, devoted exclusively to the lessening of human suffering, and the fostering of a friendly intercourse among physicians from the remotest sections of our glorious republic—kneeling at the same holy altar, and drinking at the same pure fountain—even here, has the blighting influence of this civil war been felt, endangering its claims to an unselfish nationality, and robbing it of the presence and the council of many of its warmest adherents.

But I have hope that the struggle now going on in this Government for its life, will be successful. My faith is strong, not only in the recuperative energy of the loyal people of these States, but in their Christian character and fortitude.

I take courage, and believe that our defence, based upon eternal truth and justice—proclaiming the sound doctrine of civil government and involving the rights of man—can never fail: these principles are as the salt, that shall conserve and save the life of the nation—

“For o’er the blackness of the storm
A bow of promise bends on high,
And gleams of sunshine, soft and warm,
Break through our clouded sky.”—LONGFELLOW.

But let us turn from the contemplation of our national troubles—from scenes that make the heart heavy with sadness, and are not in harmony with scientific assemblies, while for a moment I offer words of professional consolation, and silverline the edges of the dark clouds of discord gathered around our country’s horizon, by an allusion to the noble and active participation of our medical brethren in this fearful conflict.

It was not to be expected that the members of a profession, so eminently blending science and moral courage with a disinterested nobleness of character, could remain idle spectators, when the exigencies of the times demanded the services of their calling. Leaving the comforts of the home circle; the rewards of a remunerative practice, and the peaceful pursuits of their chosen vocation, with a loyal and heroic faith in the justness of the cause, associated with an ardent love of country, they did not hesitate long, ere they were found enduring the privations of the camp, or risking more dangerous positions on the battle-field, and in the “imminent deadly breach.”

Wherever danger is the greatest, or the struggle the fiercest, there may be seen the surgeon, with a laudable and patriotic devotion, cheering the soldier or the sailor on to duty, or, administering aid and comfort to the wounded. When the smoke of the battle has cleared away, then with a noble heroism, and unshrinking firmness, surrounded by death, desolation, and the horrors following a sanguinary struggle of arms, he still remains at his post on the field, or around the couch of the suffering, the sick, and the dying; cool, firm, self-possessed, amid confusion, and the turmoil of excitement, engaged in deeds of mercy and kindness; mitigating the havoc of the battle, preferring rather the risk of becoming a prisoner of war than abandoning the wounded in his care.

Sirs, when the history of this atrocious rebellion is written out, an illuminated page will be reserved, in which shall be inscribed

in letters of gold, the loyalty, the courage, the self-sacrificing devotion, and the philanthropy of the Medical Staff of the army and navy, gleaned "in the ruthless and red-handed reaper's path" with a true heroism, facing death without glory, or encountering the grim antagonist in the silence and gloom of the hospital, ministering to the perishing, stimulated by no warrior's ambition, and claiming no laurels, save those arising from the consciousness of having discharged faithfully their high and holy mission.

But, gentlemen, another sad event has occurred since our last meeting, in which, as an association, we are more immediately interested and aggrieved. There is a vacant seat here to-day. Our venerable President is not. Eli Ives has been gathered to his fathers, wearing the mantle of the highest professional honors and dignity attainable, while his "hoary head was a crown of glory, found in the way of righteousness." Who that witnessed his venerable form, bending with the weight of years, and listened to his trembling accents when he arose at New Haven to acknowledge his gratitude for the distinction conferred—did not feel they were listening for the last time to the words of a medical patriarch, "whose days were dwindled to the shortest span," waiting patiently "to lay aside the worn-out tabernacle of the body, and consign it to the rest of the grave, and to the renovation of the resurrection?"

Length of days had been vouchsafed to him, and no one had attained a higher eminence among his compeers. It will ever be a pleasant reminiscence to us and his bereaved family that the last of the numerous honors conferred upon him during his long and useful life, was by this Association, and one, that must have shed a rich halo around his declining pathway.

It is this event that brings me before you to-day. With you, I sincerely regret the occasion, by which we are deprived of the presence and council of so distinguished an individual, whose gifted intellect and matured experience have been acknowledged and appreciated, not only by those who have sat at his feet and learned of him, but by those also who have enjoyed his fascinating society, or possessed a share of his warm friendship.

To eschew the censure of obtrusion, or the committal of an over-act, by assuming the last official obligation incumbent upon the President, I would remind you that I could not disregard a precedent established at St. Louis, when the first Vice, in the absence

of the President, performed the duty of delivering the retiring address.¹

The elevation of the standard of medical education and the general advancement of the science of medicine, constitute the two great leading principles, the "controlling motive power" for associated action, and have maintained a pre-eminence unabated during the entire history of the Association. Besides, they have formed the prominent leading topics for discussion in every preceding valedictory. Arrayed in impassioned language, they have been urged as the most potent incentives to an unshrinking perseverance in the work of medical elevation, until the proud mission of our organization be fully accomplished.

It was the eloquent and learned Chapman, the first President of the Association, who, realizing the difficulties and dangers encircling the profession, which in his far-seeing wisdom he attributed to its decline in science and literature, hailed this organization as an instrumentality coming "forward in the majesty of its might to vindicate its rights and redress its wrongs," and that, "confiding in our resources, we shall through them maintain the struggle till conducted to victory and triumph."

The highly gifted and erudite Southerner² struck a similar cord, and bore a pleasing testimony to the future usefulness and aggrandizement of the Association in the field of medical literature.

In its early minority he peered into the future and proclaimed, in view of the imbedded wealth beneath the rough surface of the medical mind, that "the sinking of the grand shaft has been commenced, the matrix of the vein has been already pierced, and the priceless ore sparkling with glittering gems, but still obscured by admixture with the less valuable material, is presenting itself for reduction and refinement." He continued: "When our shaft shall have penetrated further and deeper into its recesses; when our tunnels and adits are completed, our machinery arranged, and our furnaces in blast, the American Medical Association will proudly exhibit its ingots of mental gold, the rich result of its labors, and the glorious reward of its elevated and disinterested enterprise."

Then was heard the voice of an experienced and welcome

¹ At the Seventh Annual Meeting, the President, Dr. Jonathan Knight, of New Haven, being absent, the first Vice-President, Dr. Usher Parsons, delivered the address.

² B. R. Welford, M. D.

veteran¹ in our science, from the "Providence plantations," insisting upon the adoption "of such measures as will promote and perpetuate among ourselves an *esprit de corps*" as a safe and certain means for elevating the character of the profession and advancing medical science.

From the valley of the Mississippi, beyond the "father of waters," we hail the young and ardent rival surgeon of the West.² We listen as he beautifully and truthfully alludes to the legislative duties of the Association. To "the propriety or impropriety of getting laws passed to regulate the practice of medicine."

On this point he ventures no opinion, but adds, "Laws can make only mediocre physicians—the greater lights of the profession cannot be manufactured after any process of legislative enactment—thirst for knowledge, self-love, philanthropy, burning ambition, these make the great physician and surgeon."

Another beacon light of the age,³ as skilful in didactics as he is renowned in authorship and amiable in deportment, looks abroad from the proud height he has attained, and proposes to take "a survey of the Association—a comparative glance from the present backward to the past," that we might "be better prepared to look forward intelligently into the future," and thus assisted by his keen-eyed wisdom, he assures us "that the spirit of improvement has breathed upon the masses of the profession, and everywhere scattered germs, which are now developing, and will hereafter continue to develop even in a still higher ratio, into earnest efforts for self-culture and general advancement."

Keeping pace with the improvements of our science, the North west, the "Great Water" State, speaks through one of her most brilliant, highly cultivated and vigorous minds.⁴ A comprehensive view is taken of "Medicine in its social and political relations," and we are taught "that the work of medical regeneration is to be commenced by the profession," and that this reform must be gradual; "that advances in science have also had their seed-time, their period of growth, and must ever have their fruition. When this is accomplished" by the American Medical Association, "the medical schools will rise in character as a correlative effect, and the profession establish for itself a legitimate claim to public confidence."

¹ Usher Parson, M. D.

² Charles A. Pope, M. D.

³ Geo. B. Wood, M. D.

⁴ Zina Pitcher, M. D.

Again, we listen with delight to the pleasing farewell address of another distinguished public teacher on the *eve* of his retirement from the presidential chair,¹ who, from a favorable stand-point recalls the achievements of the Association, and concludes "that no similar institution has ever been more successful in carrying out its chief object, the promotion of science," but that "much territory still remains to be redeemed."

The highly distinguished and ripe scholar,² from the seat of our national government, having presented us, and with great perspicuity of language, a review of the improvements in our science, trusts that the future will be equally successful, and that the friends of the American Medical Association will "be able to say, we found it with the education of its members too much neglected, we left it with the medical schools of the highest character, and physicians in the foremost rank of science and learning."

The controversy between "the lay members of the profession and the professors in our medical colleges" did not fail to awaken the generous efforts of a "daysman" betwixt these gladiatorial parties. A retired teacher,³ keenly alive to the interests involved on either side, and as eminent for his experience as he is distinguished for his zeal and truthfulness in science, holds out a peace-offering for the adjudication of the difficulty, and portends that, until settled, "the turbid tide will continue to flow into the schools, and its annual reflux continue to bring forth broods of inchoate doctors."

These glowing extracts, gentlemen, furnish only a glance at the stirring appeals and the enthusiastic predictions that have so often inspired eloquent pens, both as to the present and future of the American Medical Association.

If, peradventure, I direct your attention into another channel for thought and investigation, it will not be because these important themes have been overrated, or their valued interests exhausted. ¶

The faithful manner in which they have been so repeatedly reviewed and illustrated by these distinguished lights of our profession, who have preceded me on occasions like the present, and the belief that they are already photographed upon your minds in living colors—lead me to another, and, I trust, an equally interesting and important field. Not, however, that

"I love Cæsar less, but Rome more."

¹ Paul F. Eve, M. D.

² Harvey Lindsly, M. D.

³ Henry Miller, M. D.

The subject to which I have reference is Hygiene—the science of health.

A department of philosophical research unsurpassed; a cardinal principle in the broad science of medicine; a study above every other of a physical nature to which the human intellect can be made subservient, and the most philanthropic in which the heart of man can engage. A science of no modern discovery—its history dating far back into the Archæological Ages, and coeval with the sorrows to which the human family were predestined, when the Supreme Lawgiver revealed the consequences from eating

“Of that forbidden tree, whose mortal taste
Brought DEATH into the world”—

when the original destiny of man fell from the glory of his Creator to a type of degenerate existence, subject to disease and pain, decay and death.

With those who have been actively engaged in contributing to the cultivation of the science of hygiene, the sentiment is so forcibly indoctrinated as to have ripened into a sanitary aphorism, that the vocation of the medical man is not bounded by the narrow confines of curing the sick, but embraces a far nobler work—a work of illimitable extent—the prevention of disease, and the prolongation of life; a field of science “where the harvest is truly plenteous, but the laborers are few.”

It is everywhere acknowledged by those who have examined carefully this great question of the day, that it possesses a world-wide interest, and is destined to record its healthful influence and scatter its choicest blessings, wherever man in the exercise of his social relations, erects his home or establishes a community.

As it has been elsewhere well said, it “involves every relation-ship of man to the world—and it has now become the imperative duty of every physician to be a preacher of the gospel of life and health, if he has any exalted appreciation of the aims and ends of his calling, or realizes the high and noble functions of his sphere, as the destroyer of pain and suffering, and the creator of health and happiness.”¹

Without a comprehensive understanding of this indispensable keystone in the sublime arch overtopping the unity of medicine, we despoil it of its beauty and impair its strength.

The scope of observation with all intelligent physicians should

¹ Mountain, p. 550.

be, not only the investigation of those essential causes that produce the various derangements of healthy action in the human system, and disturb the harmony of its organism, but, as the conservators of public health, as faithful sentinels on the watch-tower, guarding against the inroads of disease and protecting the outlets to human life, we should be stimulated, in view of the fearful responsibilities of our calling, to employ all our resources of judgment and reason, in fulfilling its sublime mission—the preservation of health, the physical improvement of our race, and the prolongation of life. This imperative duty justly claims, as it richly deserves, an unbounded share of our professional energy; for it has been observed, that “in the science of health there are more exact, demonstrative truths, than in the science of disease; and the advantage of ‘prevention’ over ‘cure’ requires no proof.”¹

I regard it, therefore, as an established principle, that the true aim of the physician—and it should ever constitute his highest, most exalted ambition—is to avert those evils, sanitary and moral, physical and mental, within reach of science, that are destructive to health and dangerous to life.

The evils that underlie disease should be sought out, encountered, and arrested at the fountain-head. If neglected, and their insidious approach overlooked, the infectious current, swollen by a thousand tributaries, distilling and scattering its lurid streams of pestilential poison through the atmosphere of luxuriant fields, redolent with health and life, will in time ferment into a devastating epidemic, and like another destroyer, carry in its fearful trail to every family, desolation and death.

It was contemplated by the founders of this Association, as set forth in the original circular, “to cultivate and advance medical knowledge.” For the attainment of this high and laudable object, the brightest and best talents in our profession have been enlisted. The ability, the erudition, the originality of thought and sagacity, with the professional enthusiasm displayed in various fields of research and investigation for its accomplishment, present an enduring monument of the progress of American Medical Science, and afford a guarantee that the future, in this enterprise, will be wreathed with a success that shall know no rival, and consummate a reform in the science of medicine, when compared with the glorious evangelical light that burst forth from the cell of the

¹ Shattuck, p. 230, Reg. Gen. Rep.

Wittenbourg student, shall enlighten the world and endure while time lasts,

"Surpassing all around, even as the sun,
In morning splendor, shines above the stars."—E. C. JUDSON.

But these glorious expectations are not to be realized until Hygiene, the science of health, upon which the entire structure of this reform is to be erected, comes to be fully understood, and its regenerating influence appreciated; "until we explore and pursue to their very sources, those multitudinous agencies, whether physical, whether moral, whether born of earth, of air, or of society, which are either openly or insidiously degenerating the human race."¹

I would not, however, have you understand that I made choice of my subject from any preconceived idea that its mighty interests have been disregarded by the Association, or that, from fruitful fields, rich harvests of information have not been gathered and garnered in its *Transactions*, as contributions to science. On the contrary, the evidence is manifest upon the pages of its history, that from its earliest inception, measures were introduced to give it a formal recognition in the proceedings of the Convention, as a subject eminently congenial to the object of the call.

While it is unnecessary to conceal the historical fact that the original design, the "great fundamental object" that was made the prominent element for associated action, and that led eventually to the organization of the American Medical Association, was a higher standard of medical education, it should be enshrined in memory, that when depositing the corner-stone, over which has been raised a superstructure, designed to secure the honor, advance the knowledge, and extend the usefulness of our profession, the expediency of inscribing thereon, simultaneously with medical education, Hygiene, the handmaid of medicine, received the unanimous approval of the Convention.

Nor is it a less gratifying reminiscence, that the initiatory scientific reports received on the first day's meeting of the Convention in 1847, and which engaged the attention of that body, were for the enactment of uniform and efficient laws for the registration of births, marriages, and deaths, as well as for a general nomenclature of diseases. Both of these systems being primordial and valuable departments of the science of hygiene, and indispensable adjuvants preparatory to an exact and comprehensive understand-

¹ Ordonaux.

ing of those laws which govern, to a great extent, the physical and moral condition of the human family, and from whence are secured reliable data for the causes of disease and premature death.

Besides, an outside influence had already been awakened in behalf of the physical well-being of man at that period, and the attention of philanthropists was at once directed to this organization, as a suitable instrumentality to take the initiative, in the improvement, and successful accomplishment of this special department of their reformatory labors. At its first annual meeting in 1848, a communication was received from the medical department of the National Institute, enforcing upon the attention of the Association "the immense and growing importance of hygiene," claiming for it an influence second to none other which could occupy their deliberations, and recommending the appointment of a permanent committee on hygiene. This intelligent appeal was heard with profound interest, and the Association at once appointed the committee.

It would, however, be incompatible with the time allotted to this address, were I to present a detailed account of the many valuable facts and observations that have been brought to light, bearing upon sanitary science, through this Association. Every annual gathering has been a faithful witness of the energy, devotion, and mind displayed in the reports on hygiene, and sent forth to the world through our published *Transactions*. They possess intrinsic merit, are valuable documents for practical reference, and claim the evidence of accuracy, an essential element in all sanitary records.

Nevertheless, with all the labor that has been bestowed upon this subject by the Association, there remains a far more intrinsically important work to be achieved, before the science of hygiene and its corollary—preventive medicine—are perfected.

With no disposition to ignore the amount of information already secured through these reports, or even to undervalue its influence, I cannot withhold the opinion that, as a cultivated science, hygiene is almost, if not quite, an unexplored theatre of action. We have not advanced a single step beyond its stately vestibule. We have neither penetrated its broad aisles, surveyed its lofty arches, nor measured its spacious periphery. We are not prepared therefore to comprehend its immense proportions, nor even to approximate the brilliant results that are to be accomplished through the practical application of its life and health-giving principles.

The prominent motive that has influenced me, in presenting this

subject, is the earnest desire to have it assigned a far higher position—a far more authoritative recognition in the deliberations of the Association, than has been awarded it. That it shall not only hold a place in our esteem, upon a level with medical education, but be held aloft and heralded abroad as one of the fundamental objects of associated action; receiving all that deliberation and dispassionate attention from the profession, to which it is entitled by its daily increasing importance in the world of science.

If this humble and immature contribution shall in any degree infuse an influence that will lead those who compose this assembly to stand up unitedly in a whole-souled systematized cultivation of the principles entering into this too much neglected department of professional research, I shall feel that my effort has not been in vain.

It is not my purpose, however, by an elaborate argument, to re-enforce you with motives beyond those with which you are no doubt already familiar, why there is a necessity for more liberal exertions in this sanative field of science. To map out for your information the extended area that requires cultivation, with its unimproved soil and its barren wastes. To tell you of the close relationship existing between sanitary science and rational medicine. To illustrate, either by figures or facts, the sad, every-day ravages from premature death upon whole communities by preventable disease, the result of a non-conformity to the laws of hygiene. To point you to the overwhelming darkness and distress, both physical and mental, social and moral, that prevail in those haunts of depravity, where the light of the science of sanitary reform never has been allowed to shed its luminous rays, either through public ignorance or dereliction of duty, with municipal or legislative bodies.

Neither do I consider it necessary to institute a comparison from statistical records of the ratio of deaths to population, where sanitary improvements have been made, and those where they have been wholly neglected. With these principles and laws, drawn from observation, you are already conversant; indeed, the incentives that from year to year have been so ably and so clearly illustrated and urged upon you by those who have labored in the cause, together with the recorded matter in our own *Transactions*, ought to prove eminently conducive to increased thought and investigation.

Nothing is more obvious to my mind than the existence somewhere, or in some way, of a lack of efficiency, or a hidden obstruction, ever frustrating the efforts of the friends of this reform, that

discourages their exertions, hinders the production of a healthy tone of action in the public sentiment, and hence, operates as a serious drawback to the progress of sanitary science. It is from no distrust as to the value of this subject, or to its ultimate success in contributing to health and life, all, and even more than has been awarded it, that I have alluded to circumstances, both discouraging and unpropitious in their character. In view of the mighty import of hygiene upon the prosperity and happiness of society, and a knowledge of the fact, that the efforts already attempted by the Association have not been seconded and followed up by a standard of attainment in the profession itself, commensurate with the exertions made, nor by the adoption of co-operative measures by the people themselves, or, through legislative enactments to any extent, for overcoming the obstructions that stand in the way of public health—I have felt constrained to allude in this plain manner to the prevalence of causes operating as hindrances to the onward progress of sanitary reform. At the same time, with the view of counteracting the influence of these embarrassments, I submit for your consideration a twofold proposition as a remedy, which, if not found equal to the demand, will, I trust, prove of more than ordinary value for the advancement of the science of health.

I propose, first of all, to elevate Hygiene, as a branch of scientific study, to a separate and distinct chair in our medical schools, independent of physiology, and constituting it a requisite curriculum, preliminary to that diploma which confers one of the highest honors of the profession.

Then, again, the adoption of some more effectual measures for interesting and enlightening the public mind with the revelations and results that have already been effected, together with the inestimable advantages that are destined to flow therefrom, in relation to health and length of life.

These, or similar plans for elevating the character of hygiene in the scale of medical learning, and placing it more prominently before the world, are equally demanded, ere a more successful induction of its inestimable advantages can be effectually secured. The necessity for them as indispensable agents of the health, happiness, prosperity, and life of the masses of mankind under all circumstances, in all places, and at all times, must be presented in the strongest possible colors, while the fearful array of evils, the natural and invariable result of its neglect, must be shown in oppo-

site, though equally attractive tints, if society is ever to realize the blessings from sanitary reform.

I should be false to my convictions were I not to say, that to understand distinctly the etiology or cause of disease, or attempt to establish important practical deductions therefrom, we must study, and study profoundly, the science of Hygiene. Nor will it require an apology, if I define the etiology of disease to be the basis of preventive medicine, a knowledge of which is infinitely more important to communities than curative medicine; nor shall I be called extravagant upon this subject, if I venture to add, that without its inestimable teachings, as a distinct branch, medical education is defective.

This opinion, however, is not new. Ten years ago, the admirable Shattuck announced that "sanitary professorships should be established in all our colleges and medical schools, and filled by competent teachers. The science of preserving health and preventing disease should be taught as one of the most important sciences."¹

Dr. Richardson, an eminent English sanitarian, has also observed: "In every school of medicine there ought to be, and we have reason to believe there soon will be, a professor of hygiene, holding a position as important as the professor of physiology or of practical medicine. In every collegiate or university examination for licenses and degrees, a knowledge of hygiene should be demanded."²

Another beautiful and classical author forcibly remarks, that "medical study points to two grand divisions, etiology and hygiene," and concludes the paragraph with this valuable sentiment: "In a complete and systematic course of medical study, these subjects are unsurpassed by any others in utility and interest. If they were more thoroughly studied, we might have less reason to mourn the mortality occasioned by disease."³

The lamented and estimable Dr. Edward Barton, by whose recent death the world of science has been deprived of a distinguished writer upon hygiene, taught a similar doctrine.

He represents, and truly, that it is through the study of "the prevention of disease—the great and all embracing subject of general and special hygiene—that the exalted value of a medical education becomes appreciated."

And more recently, in a valuable and popular report on medical

¹ Shattuck's Sanitary Commission. Boston, 1850, p. 229.

² Journal of Public Health, 1855, p. 7.

³ A. Stillé, M. D.

education, this association has been faithfully admonished that there is "a demand for a higher and more exalted course of medical education," and special reference is made to the fact, that in some of our schools at least, "hygiene," which was taught in the last century by Boerhaave and Cullen, and in the early part of the present by Rush, has been entirely forsaken, and it earnestly insists that "sanitary science should be separately taught."¹

But I forbear to enlarge on this point, confident there are none within the sound of my voice who are not pledged by the strength of their attachment to the science of medicine, to elevate its time-honored standard, until its heaven-born folds shall wave triumphantly over every city, town, village, and neighborhood, throughout the civilized world, and thus answer to the demands that are required of every intelligent physician at the present day. It is therefore only a question of time and manner, as to when and how our profession shall be educated in these ennobling principles, "the hygienic condition of the nation, of such immense interest to our people; that first, all important question ever before the profession—the prevention of disease."²

It is justly due to the cause of sanitary science, I should remind you that within the past few years a new and important direction has been given to its study and pursuit. You will anticipate that I refer, and I do so with pride, to the National Quarantine and Sanitary Convention. Many now present have not only taken an active part in its deliberations, but are also cognizant of the fact, that among its warmest advocates are intelligent members of other professions, together with zealous philanthropists, who have engaged with a laudable earnestness in this work of reform, and who have given to the world the results of their earliest investigations on points of immense interest, that are destined to accomplish important and praiseworthy innovations, both in external and internal hygiene.

If I rightly interpret the views and regulations of this scientific congress of sanitarians, who have embarked in a crusade against physical corruption with an energy that cannot fail to enlist confidence, they look for earnest sympathy and hearty co-operation from physicians; and among other considerations that invite medical men to more direct and liberal exertions in furthering the cause of the physical condition of society, is the growing

¹ M. Reese, M. D., 1860.

² Eve.

interest with which this question is now regarded by those untiring spirits beyond the pale of our profession.

Let it, however, be remembered that "a sense of duty, far more than the mere force of example, ought to enlist every medical man in this holy warfare."

The study of his profession should not only teach him the value of hygiene in its broadest application, but his daily avocations should make him familiar with its wants, and therefore, "if he who knows so much—should speak slightly of this higher work of prevention, and carp at the efforts of others—society would soon catch his tone of thought and feeling; while a cause which, on serious reflection, he would be constrained to support, must suffer irreparable injury."¹ But if, on the other hand, he should be induced to give himself earnestly to the promotion of this reform, and bring his influence to bear on those with whom his professional avocations place him in communication, it is impossible to over-estimate the good he may be the means of effecting.

Let it not be urged through any narrow and selfish policy that sanitary science is not germane with that of medicine; is only approximative, and does not legitimately belong to the province of the physician. The excellence of our dignified calling can only be attained or estimated by our faithfulness and devotion in protecting human health and life, from the influence of those injurious agencies that are constantly undermining the physical strength of the people, either by personal efforts or by advising the enactment of judicious sanitary laws.

Recently a new and important field has been presented to the sanitarian, growing out of the internecine war in which the country is involved. No sooner had the storming of Fort Sumter echoed its treasonable peals over the land, and the spirit-stirring drum was heard, calling to the field an immense volunteer army, than military hygiene became at once a familiar theme. It awakened anew the enthusiasm of the sanitarian, aroused the attention of the medical staff of the army and navy, and of our profession in civil life as well as the philanthropist in the home circle.

To our profession belongs the honor of introducing to the government the necessity for a plan of organization, adapted to the hygiene and comfort of the soldier. Urging upon the war department the appointment of a civil commission, whose province should

¹ *Medico-Chirurg. Review*, Jan. 1848, p. 32.

be, in conformity with the civilization and humanity of the age, to apply to military life the ripest teachings of sanitary science, in order "to prevent the evils that England and France could only investigate and deplore."

I need not enter into the details of the operations of the United States Sanitary Commission. It is familiar to all of you, and while it is "doing a work that ought to be done by the government, and carrying out a plan of operations that should be inseparably associated with the original creation of the army and the whole management of the war," its mission of faith, and labor of love, are known and felt, and appreciated, and sympathized with, and cherished throughout the entire land. It is proving itself the "one thing needful" for the sanitary salvation of the army. It is the good seed sown which will germinate, and spring up, and grow, until it brings forth its legitimate flowers and fruit, bearing the impress of a reform in the entire system for the preservation of health and for the comfort of the soldier.

In a word, its two years' actual observation has brought to light many valuable facts in hygiene, designed, not only to preserve the health, and vigor, and *morale* of the army, but indirectly to promote a spirit of subordination and obedience to a thorough plan of military discipline.

Military discipline and military hygiene are twin brothers in the army. The enforcement of the former is essential to the efficient application of the latter. Every military surgeon should be a military sanitarian, while every military officer having a command, should co-operate with the surgeon by inaugurating a strict and uniform military discipline consistent with official propriety, in order to secure the health and efficiency of their troops, through the instituted laws of hygiene. Every surgeon should be thoroughly educated in all medical subjects, especially those affecting the health of the soldier, adapted for the prevention of disease in the army. They must not only have a knowledge of the laws of hygiene, but be able to comprehend where and how to administer those laws, thereby making their information on sanitary subjects practically useful.

As an illustration of the incalculable value of a knowledge of the science of hygiene to an army surgeon, and its importance as a separate and distinct branch of medical education, qualifying the physician for greater usefulness in his vocation, I have only to refer you to the published opinion of the Surgeon-General of the

United States Army, who recently issued an order requiring "from candidates entering the medical staff of the army, that they shall have attended at least one course of lectures on hygiene," and recommending to medical colleges to add to the faculty of their schools a professor of hygiene, while he assures them that, "not only will the general education of candidates for graduation be advanced, but the U. S. army medical service will be the gainer in having more competent men present themselves for admission."¹

It is an encouraging thought, that of late this subject has not only enlisted an increased attention among the medical staff of the army and of our profession in civil life, but that it has in a practical way attracted the attention of officers in the army as well as the philanthropists at home.

Nor can the fact be too widely spread, that we are deficient in literature on military hygiene, and that there should be no lack of zeal with those who have opportunity for the collection and preservation of materials from the rich and inviting fields of observation daily presenting themselves in the present crisis, that they may be made available to the profession, and conduce to the advancement of the science of hygiene.

It is gratifying to learn that already a work of this kind has been authorized by the government, under the direction and at the suggestion of the Surgeon-General, on a scale both elaborate and magnificent in its character. It is designed to furnish the medical history of the war, embracing under this general title the moral and sanitary condition of our armies, the causes of disease, and the frequency of death, and will no doubt recommend measures for the alleviation of those destructive influences that prejudice the health of an army.²

It would carry me far beyond the limits of an address, to lay before you, in a manner worthy its presentation, the subject of state medicine, a term new to many, but as understood by a highly gifted co-adjutor in the cause, "is the application of the principles of medical science to the administration of justice and the preservation of public health—the alpha and omega, the beginning and the end—the opening and the closing chapter of its whole institutes."

¹ Wm. A. Hammond, M. D.

² We learn that Dr. Hammond, the Surgeon-General, has a work in press on *Military Hygiene*, which is destined to throw much light upon this interesting subject, and will prove of great value to the profession.

³ Ordrouaux, 4th vol., *Trans. Quar. and San. Con.*, 1860.

And I would take pride, did time permit, in elucidating this momentous question of State prophylaxis, to urge upon your attention the value of an accurate sanitary survey of every State, to ascertain their physical, mental, and moral force, the nature of those causes which favorably or unfavorably affect the body politic, and to investigate the statistical, topographical, and jurisprudential condition of each; but I can only name these scientific interests that belong specially to state polity. At the same time I cannot forbear to urge upon your attention the importance of adopting measures recommendatory in their character, but adapted to the exigency of the occasion, setting forth in bold relief the advantages that would follow to the vital prosperity of every state where laws of health, preventive and palliative, are enforced by legislative enactments. Indeed, the attention this subject is beginning to attract, almost warrants the conclusion that the period is not far distant in the future, when the government of every commonwealth in our country, fully awake to its responsibility, will "demand that the same provident care of the legislature should be extended into the field of human life, to encourage, and to watch over, and protect the vital machine, by which alone all other interests, public and private, are created, sustained, or made of any value," as are now recognized and extended in favor of agriculture, commerce, and manufactures. In view of this good time coming, it "behooves every member of the profession to see that he is no laggard in the road towards a full knowledge of the science of public hygiene, even though he may not choose to engage in its practical application; for the time is approaching when the suppression of every health impairing cause will be demanded by the public voice, and the medical practitioners of every vicinage will be the authorities for magisterial action."²

The organization of sanitary associations in cities, towns, and neighborhoods, led by members of the medical profession, should be encouraged. The investigations and discussions in which their members will engage, must contribute largely to the diffusion of information on the laws of health and life, and arouse the public mind to an interest in sanitary reform.

Already have these life-saving and health-preserving societies been organized in two of our principal cities. They have entered upon their "work of faith and labor of love" under favorable aus-

¹ Jarvis.

² J. H. Griscom.

pices. Inquiries upon the best means for securing the objects proposed have been instituted. Practical questions relating to improvement in many departments of hygiene have been freely discussed. Valuable scientific papers have been read, and committees appointed to investigate and report upon subjects involving personal, domiciliary and public hygiene. In short, spirited measures are in operation to enlighten public opinion, and diffuse useful information for the improvement of health and the prolongation of life.

In this connection it is honestly due to the young but vigorous and enterprising Garden City, in which we are to day assembled, to acknowledge that she holds, deservedly, a pre-eminent position among her older sister cities in this country, enjoying a priority claim for leading off, in the right way and at the right time, for the prevention of disease and the unnecessary expenditure of human life, through the introduction of an efficient and comprehensive reform in the sewerage and drainage of their city.

I refer to the appointment of an experienced civil engineer, on a liberal scale, to visit "Great Britain and the continent of Europe, for the purpose of examining the various methods of sewerage adopted there." The report of this commission is a document of uncommon interest and value, replete with important details. The information already secured, and, I trust, to be applied in the construction of their sewerage, will, I doubt not, yield an ample reward for the labor bestowed, by overcoming the tendency to accumulation of a putrescent sewer atmosphere, which has ever proved an active poison in large cities, deteriorating the air, swelling the amount of preventable disease, and contributing to premature mortality.

Massachusetts has also distinguished herself among the American States, by authorizing and carrying out a sanitary survey of the commonwealth, and initiating the first law for the public registration of births, marriages, and deaths. The inauguration of these philanthropic systems is worthy of all praise, and commend themselves to other States for imitation. As on the pages of Massachusetts' history are recorded the noble deeds which have given her a good name and rendered her glorious in the cause of hygiene—so may I with propriety, and in equally exalted terms, refer to the noble and illustrious page in the history of the sanitary police of cities, to be found upon the calendar of this emporium of the west—Chicago, where, a few years ago, stood the primeval forest, a dreary wilderness, tenanted only by a savage race, who revelled in

the enjoyment of their hunting-grounds, and danced around their council-fires, undisturbed by the tread of the pale-face, and far removed from the haunts of civilization.

When I contemplate the mighty wave of transformation that, within the past half century, has swept over the fascinating spot where we now congregate, and remember that "westward the star of empire points the way," it gives me an earnest for the future—while the advent of its impress in the cause of hygiene, furnishes a hopeful assurance of continued energy and perseverance in this great reformatory movement of the age.

To further this work of sanitary reform is not only the privilege but the province of the American Medical Association. For its improvement, it enjoys peculiar facilities, and is possessed of information best adapted to promote the objects contemplated.

I would, therefore, as a legacy, invoke you, as the only true and legitimate conservators of health, and by all the stirring claims of duty, of humanity, and of professional pride, by which as an association you are held firmly and conscientiously together, and as good citizens, to "be ever ready to give council to the public in relation to subjects of medical police, public hygiene, and legal medicine."¹

It is somewhere recorded that the ancient Greeks cherished a single sentence, which they believed had descended from heaven, and they caused it to be printed in letters of gold, and inscribed in a conspicuous place on one of their august temples, that all might read and be enlightened. Imitating this innocent, yet significant custom of an ancient nation, I would recommend that the inscription, "Hygiene, the science of health," printed in flaming letters of gold, should adorn the escutcheon of the Association, to be "known and read of all men." That its brilliant display and its talismanic fascination shall seduce multitudes of earnest inquirers after the truths of science, to advocate the claims of its irresistible influence in exterminating those principal evils, which are ever busy entailing upon the human family, disease, decay, and premature death.

¹ Medical Ethics.

REPORT

OF THE

COMMITTEE ON MEDICAL EDUCATION.

BY

CHRISTOPHER C. COX,

SURGEON U. S. VOLUNTEERS, OF MARYLAND.

REPORT OF THE COMMITTEE ON MEDICAL EDUCATION.

EARLY in 1861 a communication was received from Dr. Joynes, of Richmond, declining to serve upon the Committee on Medical Education, of which he was chairman. As the second-named member, it became my office to prepare something, however imperfect, in recognition of the assigned duty. The remarks which follow are the result of fragmentary portions of time gleaned from the pressure of constant and responsible official labors.

The present period of our history is emphatically one of progress. Knowledge, in all its departments, has been stimulated into new life by the animating spirit of the age; additional facilities of study and research have been placed within the reach of its votaries, and new and important facts annually poured into its expanding archives. Nor is our art without a share in this general improvement. The advancement in Medical Science and the increased value of its practical results are no longer debatable problems. To the sublime art of Medicine, as at present understood and practised, humanity owes much of the physical welfare it now enjoys; as well as the diminished severity of disease and its control by intelligent and judicious treatment. Review the medical management in the apoplexy of Charles II., as described by Macaulay, the historian, when all the renowned physicians of London were summoned to the royal chamber, and compare it with the humane, discreet, and enlightened treatment of the well-trained practitioner at the present day. Hot iron was applied to the king's head, after excessive depletion by the lancet; "a loathsome, volatile salt, extracted from human skulls, was forced into his mouth." In another place the same distinguished Englishman furnishes direct testimony to the progress of our art. "Every bricklayer," says Macaulay, "who falls from a scaffold, every sweeper of a crossing

who is run over by a carriage, now may have his wounds dressed and his limbs set with a skill such as a hundred and sixty years ago all the wealth of a great lord like Ormond, or of a merchant prince like Clayton, could not have purchased." "Some frightful diseases," he continues, "have been extirpated by science, and some have been banished by police. The term of human life has been lengthened over the whole kingdom, and especially in the towns. The year 1685 was not accounted sickly; yet in the year 1685 more than one in three of the inhabitants of the capital died. At present only one inhabitant of the capital in forty dies annually. The difference in salubrity between the London of the nineteenth century and the London of the seventeenth century is very far greater than the difference between London in an ordinary season and London in the cholera."

And yet, valuable and gratifying as may be this and kindred testimony in favor of medical progress, it is undoubtedly true, that, regarding the antiquity of physic and its vast importance to human life and comfort, it can hardly be said to have advanced *pari passu* with other sciences. The profession nowhere has answered the full expectation of its early promise. It does not hold the proud position, especially in this country, to which, as the guardian of truth, it is really entitled. There is evidently abroad in the land a want of confidence in the profession and an indisposition to accord that dignity and importance which should attach to it, as, next to religion, most vital in its relations to humanity. Why is this, when at no period the improvements in medicine more strongly challenge public admiration and trust?

It is primarily the object of the American Medical Association to seek out the causes of this professional depreciation, and, by stimulating healthy reforms, and elevating the standard of medical education, to contribute more successfully to the great object of human relief underlying all its efforts. In briefly attempting this duty, the Committee do not expect to offer anything new, or place in stronger attitude the plain truths so ably and eloquently enforced in former reports. The importance of the subject will readily excuse a possible repetition of much already embraced in those admirable papers.

And in the first place the reproach resting upon the art, and which it is our duty to remove; the growing distrust greeting our practice everywhere; the almost indiscriminate patronage of the various fashionable medical follies, homœopathy, hydropathy, mes-

merism, chronothermism, and others, to the neglect of true science, are due, it is to be feared, in a great measure, to disregard, on the part of the profession itself, of its own high purposes and aims; and therefore the failure to adopt such measures for its own advancement in all those essential mental and moral qualities as will command the largest confidence and prove a crown of honor to its disciples.

To treat disease rationally and successfully; to improve the faculties of the mind to an exalted degree, and appropriate to the greatest advantage the experience of others; to grapple with the facts of science; attain the largest information, and command the best resources of art, the physician must be soundly and symmetrically educated. The chief cause of the evils complained of is, unquestionably, deficient preliminary education. Let any one reflect upon the volumes to be perused and comprehended; the various departments of philosophy, collateral to medicine, which should be understood; the vast annals of medical and surgical science to be scanned; the intimate physiological and pathological relations of the human body to be penetrated; the endless circle of diseases and their various remedies; the reciprocal action of mind and body, and the mysterious morbid complications to be traced out by a clear intellect, and submitted to a strong and disciplined judgment; let him reflect upon all the difficulties which beset the path of the skilful physician, and the necessity of a comprehensive basis of sound and thorough preliminary education must be admitted.

The neglect of this important prerequisite to suitable medical attainment attaches first to the private practitioner, who enters the pupil upon the office register without inquiring of, or caring for his educational fitness for a calling which demands the highest order of intellect and the most varied study and acquirement. He is often destitute of the moral independence or conscience, or both, to reject an applicant he has reason to regard as unfit for the pursuits he has espoused.

In a communication from H. L. Haskill, Acting Surgeon-General, in reply to a letter addressed by a committee of this Association to the Surgeon General U. S. A., in 1846, the proportion of those who pass the Army Board is stated at one-fourth. He says: "The most striking causes of failure, on the part of candidates, are insufficient preparatory education; a hurried course of

professional pupillage; want of proficiency in practical anatomy or pathology and in clinical medicine."

In the *Transactions* of the meeting of this body in New York in 1847, is the report of a committee on preliminary education, appointed at the session of the previous year. The responses to a circular, addressed by the Committee to distinguished practitioners in all the States and Territories, establish the fact "not only that there is no uniform standard of preparatory education exacted of medical students throughout the United States, but that there is no general rule adopted in any particular State or district which has been authorized or recommended by medical societies or other official bodies, or established by common consent and custom. The whole subject is left to private preceptors, many of whom recommend, and a few exact, an elevated standard, while others leave it to the discretion of the students themselves or their parents." In the resolutions appended to the report, the Committee advised certain conditions of admission into a preceptor's office, to wit, "a good moral character; a good English education; a knowledge of natural philosophy and the elementary mathematical sciences, including geometry and algebra, and such an acquaintance at least with the Latin and Greek languages as will enable the student to appreciate the technical language of medicine and read and write prescriptions." It must be conceded that the recommendations of the Committee, excellent as they are, are exceedingly moderate in the degree of attainment required. Still, as a step in the right direction, the report deserves to be commended. How far the suggestions have been complied with, or even seriously entertained by physicians, it is impossible to determine, but it is to be feared that few have been influenced by an emanation from the national faculty so fruitful of good results. A sufficient knowledge of the classics to improve the tone and vigor of the mind, elevate the taste, and facilitate the acquisition of learning would seem to be an essential preliminary to the study of so comprehensive and intricate a science as medicine; to which should be added a clear apprehension of natural philosophy, the principles of which are so frequently applied to the anatomy and physiology of the body; as well as such of the natural sciences, botany, geology, and mineralogy, as are intimately associated with the *Materia Medica* from which medical agents are derived for the cure of disease. The acquirement of the practical part of the healing art seems to be the sole object of the aspirant for medical honors, forgetting that more than mere lec-

tures and clinics are necessary to constitute the accomplished physician. It is not enough to pay the preceptor's fee—to ascertain the position of this or that artery—the relation of this or that nerve, the sensible qualities of a particular drug and the maladies for which it is employed. These may constitute a *routinist*, but will not make the rational, thinking, investigating, prudent practitioner, the result of rigid mental discipline and early scholastic training. "One of our great men has said," remarks M. Serres, at the opening of the Medical Congress, in Paris, 1845, "I know nothing more contemptible than a cowardly soldier, or than an ignorant medical man; the first is contemptible because he compromises the fate of his country in the day of danger; the second because he compromises hourly the life and welfare of his fellow creatures. Thanks be to heaven, there is no cowardly soldier in France, and government is under the obligations to society to employ all its power to render it impossible that there should be such a person as an ignorant medical practitioner."

But the private practitioner is not solely to blame in this connection. The professors of colleges, who should sustain the relation of faithful custodians to the temple of science, admitting nothing unworthy within its sacred portals, are chiefly deserving of censure. A dishonorable rivalry exists between schools, at the expense of science, while an unworthy jealousy of opposing teachers not unfrequently refuses recognition of improvements which originate within the walls of an antagonist institution. Nor is this all. The successful scramble for students of every grade of qualification and disqualification, results in the graduation, annually, of large classes of young men in the cities, who, it is not too much to affirm, are, for the most part, poorly furnished for the responsible duties awaiting them in the future. The irregular attendance upon two courses of lectures; no small quantity of cramming during the last days of college term; an hour of pretended examination in the green room, and the ribboned diplomas are distributed before a crowd of exultant sweethearts and gratified parents and guardians. Each roll of parchment indorses its possessor as "*vir ornatissimus*," and he goes forth amid the sound of martial music and rich bouquets showered upon him by the hands of fair ones, an accredited agent for life or death, endowed with all the paraphernalia of a "Doctor of Medicine," but destitute of the brains. These remarks may seem ungenerous and needlessly severe. They are not so intended, but are prompted by a stern sense of duty to the profession.

Nor do they, I am proud to say, apply to all the medical schools of the country, although, it is to be feared, a very small number of them deserves exemption from censure. "It is a fact," observes Dr. Manly, "and one too pregnant with disastrous consequences to pass without the unqualified censure of the whole profession, that some of the medical schools in their annual circulars, invite, nay almost entreat the public for their patronage; they present inducements to the half educated, and even the wholly uneducated youth of the country to become physieians, promising faeilities of study and full courses of instruction on easy terms; and on their arrival, accept promises to pay at remote periods, instead of their fees; thus offering bounties to the ignorant and illiterate, to crowd the ranks of a profession whose duties and responsibilities require higher attainments, a more elevated moral eharacter, greater industry, and a more severe and eonstant application to study than any other profession in the whole catalogue of human sciences."

Thus, in the disgraceful seramble for students, exalted motives of action have no place. The country is flooded with incompetent physicians; the reproach resting upon the profession gathers strength, and quackery and empiricism acquire increasing public confidence. The late searching examinations of army medical examining boards for the purpose of testing the qualifications of applicants for military position, as well as of such already in service in the field or hospital, as are, from time to time, cited before them upon the charge of incompetency, reveal the ignorance resulting from the carelessness and neglect of schools. In one of the most prominent of our colleges, all the candidates for graduation, last March, were successful in procuring their diplomas, and almost immediately after a number of these applicants, for medical positions in the army, were rejected by the Army Board, before whom they presented themselves for examination. It is notorious that few of the college graduates undergo creditably the searching, but just, scrutiny to which they are subjected by army boards.

Much of the difficulty, upon which we have discoursed, grows out of the inefficient organization of Faculties of Medicine, and the inadequacy of the plan of instruction to the ends proposed. In the first place, the professors are often wholly unfitted for the duties they assume as public teachers, and the claims of many better men are overlooked in their selection. A gentleman is not unfrequently chosen for a given ehair from numerous candidates of superior merit, because he has it in his power to subserve some particular

purpose, or conciliate some influential social or professional clique. The European system of *concours* would vastly enhance the intellectual status of our professorial corps in the various institutions of instruction.

The schools, moreover, as already intimated, are too crowded. Of those who attend a demonstration in the theatre; follow the lecturer through the clinical wards; or rush to the operating room to witness some case of capital surgery, few are favored by even a sight of the professor or subject, much less benefited by the remarks of the speaker. Besides, the whole system of instruction is essentially defective. In the first-course student the difficulties become insuperable. Just from the office of the preceptor, where a few weeks or months have been passed, with no proper direction given to his studies; without having acquired the first principles of physiology or therapeutics, he is required to attend five or six lectures a day, hurrying from one lecture hall to another without pause for reflection or review. Endless varieties of facts and reasonings are presented to his bewildered intellect which are rarely comprehended, never digested, and which leave the mind more confused at the close than at the opening of the session. The professor indicates little or no interest in the student out of the lecture room, and confines his examinations, which occupy but a small fragment of the hour, to the few who collect immediately around him on the advanced benches. So that, between the multitude of abstruse topics, he is expected to grapple in a given time, and the carelessness and neglect of the professor, he reaches the end of his course with a precious modicum of sound information in regard to the subjects upon which he has been for so many months engaged.

The examination for degree, also, it must be conceded, is entirely too trifling in extent and thoroughness, and loudly demands correction, if we expect to wipe out the charge of ignorance and incompetency so often applied to the profession.

How, then, are the mischiefs to which I have alluded to be corrected?

I. A certificate of suitable preliminary education should be exacted of every young man admitted to office instruction, and a failure on the part of any medical practitioner to comply with this reasonable demand should be deemed unprofessional; a violation of the *esprit du corps*, and expose him, if a member of any medical

society, State or county, to censure by, or expulsion from the same. A similar test should be required at the door of the university, and no student should be suffered to matriculate until he shall have furnished satisfactory evidence to the Dean that he has been qualified by a course of preparatory study in the classics and English branches of belles lettres and science, including a sufficient knowledge of chemistry and physiology.

II. The entire system of medical instruction in the colleges of the country requires reform.

1. The number of professors should, if necessary, be increased, so that each department of the science may receive its due attention and be thoroughly taught.

2. These should always be elected by a Board of Regents or Trustees (a certain proportion of whom should be medical men), the Faculty of the college having no precedence in the nomination of candidates or any influence, other than outsiders, in their selection. In the greater part of Europe the professors are chosen without regard to the wishes of the Faculty, and paid by the government, instead of deriving fees from the sale of tickets.

3. There should be not less than three courses of lectures of six months each in duration; the first to comprise anatomy, physiology, chemistry, and the principles of medicine, and the remaining courses to embrace the usual branches taught in the schools, including hygiene, medical jurisprudence, and toxicology.

4. The applicant for matriculation should be not less than 19 years of age, and must have completed at least six months' study in the office of a respectable preceptor prior to attendance upon college lectures.

5. Examinations upon the preceding lecture should be held daily by the Professor, the class being interrogated by divisions, so that no student may be omitted in the review.

6. Clinical instruction should also be so arranged as to confer equal advantages upon all.

7. It should be obligatory upon the student to attend every lecture and clinique, unless sick or unavoidably detained. Monitors should be present to note such as are absent or delayed beyond the hour of the exercise, and the list of delinquencies forwarded every week to the Dean of the Faculty. Premiums should be accorded to unusual merit, and penalties meted out to wilful neglect of study or gross immorality.

8. A corps of teachers should be organized in connection with the Faculty, to direct, under suitable regulations, the studies of the pupils, during the recess of the lectures—the tuition to consist of oral explanations and examinations, chemical manipulation, pharmacy, pathology, clinical medicine and surgery, and *conversaciones* or discussions upon medical topics.

9. The final examination for degree should be conducted by a Board of Examiners, selected from the first medical talent of the State, without the presence of the Faculty. To avoid possible partiality or the influence of improper motive, the members of the Board should be liberally remunerated for their services, not only to indemnify them for interruptions and consequent losses to private business for the time neglected, but also to place them above the remote possibility of suspicion. The examinations should not be hurried or superficial. Every branch should receive its proper attention, and, whenever practicable, the candidate required to test his skill on the *cadaver*, and to diagnose disease at the bedside of the sick.

These views are not extravagant. The general ignorance of the profession, and the diminishing public confidence consequent thereupon, demand sound and healthy reform in the modes of medical instruction. It is time the educated mind of the country should be animated by a lofty independence in its dealing with a subject so important to science and humanity, and that, as the guardian of truth, it should devote its energies steadily and fearlessly to the great work before it.

It may be objected that the necessity of suitable preliminary education might exclude many deserving young men, who, without early advantages, possess those qualities of mental acumen and industry which cannot fail to constitute them ornaments of the profession and benefactors of the race. The obvious answer is that the application of no general rule, looking to aggregate good, should be diverted from its proper purpose from regard to exceptions.

No man can be more sensible than is the writer of this report of the admiration due those men of extraordinary intellect, but limited means of early cultivation, who reflect lustre upon the profession of their choice. To all these the most respectful homage should be generously accorded. But to such minds what conditions of preliminary education would be insurmountable? The ambitious but poor student would, by perseverance and the countenance and encouragement of liberal patrons of letters, control all opposing

difficulties, and make his way, *pari passu*, with the more favored into the arena of college competition.

It may be also urged against the plea to extend the cause of instruction that the country is in its infancy; that men are called to assume responsibilities early, and that time cannot be spared in protracted preparation for the duties of life. If this were really so, it cannot be weighed against the inestimable advantage of sending out from our schools qualified practitioners instead of routinists and quacks. The argument of expense also falls to the ground for the same reason.

In every other country than the United States preliminary education is invariably required of the student of medicine, while the duration and thoroughness of college instruction greatly exceed our own.

In Edinburgh five years is the term of study, six months of each year being passed in the university. After continued attendance upon lectures and other instruction, besides, for six months of each year of the period of study, he presents himself for the doctorate. The conditions annexed to this final examination are a complete statement of his studies, as well in literature and philosophy as in medicine, accompanied with proper certificates; a thesis, either in Latin or English, subject to the searching criticism of one of the college professors; a competent knowledge of the Latin language, and a thorough acquaintance (tested by written or oral questions) of anatomy, chemistry, botany, institutes of medicine, zoology, materia medica, therapeutics, pathology, practice of physic, surgery, theoretical and operative midwifery, medical jurisprudence, and toxicology. If found unqualified, he is required to study one or two years longer before he can be admitted to a second examination. After appearing, in compliance with the *Senatus Academicus*, to defend a thesis, he is admitted to his degree. This offers a mere outline of the course of medical instruction in one of the principal cities of Europe.

In Paris the number of professors amounts to twenty-eight, besides assistant or adjunct professors. The instruction is embraced in eighteen courses of lectures, two a year, comprising anatomy, medical chemistry, legal medicine, surgical pathology and therapeutics, pathological anatomy, operative surgery, clinical medicine and clinical midwifery, medical physics, hygiene, medical natural history, accouchements, physiology, surgical pathology, pharmacy and organic chemistry, therapeutics, and pathological anatomy.

Before matriculating, he presents certificates of moral character and a Baccalaureate diploma; or, should he not have graduated in letters, he is obliged to submit to an examination of one hour's duration in the French, Greek and Latin, general history and geography. As at Edinburgh, the course of study is four years. To secure a diploma five examinations must be submitted to at intervals during the course of study—the first comprising chemistry, physics, and medical natural history; the second, anatomy and physiology; the third, internal and external pathology; the fourth, hygiene, legal medicine, pharmacy, materia medica, and therapeutics. The fifth, a practical, clinical lecture at the bedside. The theses must be publicly defended.

At Berlin the number of professors and assistant professors is sixty seven, and the branches taught consist of psychology, natural philosophy, logic, metaphysics and anthropology, natural sciences, physics, climatology, theoretical and practical chemistry, botany, zoology and mineralogy, anatomy, physiology, history of medicine, institutes of medicine, pharmacology, dietetics, pathology and therapeutics, mental diseases, surgery, ophthalmology, bandages and instruments, midwifery, medical jurisprudence, clinical surgery, clinical medicine, clinical midwifery, clinical ophthalmology, and dispensary practice. The examinations are made semi-annually, and no one is allowed to enter upon a second course without satisfactory evidence of his proficiency. The examination, preliminary to admission into the medical department, is exceedingly thorough, consisting of physics, chemistry, botany, natural sciences, the classics, mathematics, history, and philosophy. From four to six years are required to complete the course of study, during which the student is subject, under the laws of Prussia, to three distinct examinations, entitled respectively *Examen Philosophicum*, *Tentamen medicum*, and *Examen rigorosum*. The last is, as its title implies, very strict, and the final test of qualification. Anatomy is demonstrated upon the dead subject, or extemporary descriptions of the parts of the osseous, vascular, and organic systems. Materia medica, by deciding upon medicines submitted unlabelled for inspection, and writing prescriptions of variable preparations and combinations. The knowledge of the student is tested in surgery by operations upon the *cadaver*, and the application of bandages and other surgical appliances to the living subject; while the diagnosis of disease is to be made and explained at the bedside. The same extended and thorough course of instruction, and the same rigid scrutiny into

the qualifications and requirements of candidates for the doctorate, exist, with little variation, in the different medical universities of Europe.

These facts, which have been more carefully collected and more strongly and comprehensively presented in former reports, are suggestive of the estimate placed upon the importance of medicine in other countries. In Europe an educated physician is presumed to be an accomplished *belles lettres* and professional scholar. In this country, owing to causes already described, a doctor has no special prominence, and, because a graduate, is not therefore regarded as educated or learned.

The members of the Association are so generally informed in regard to the police regulations and modes of tuition of the various colleges of the United States, that it is unnecessary I should even allude to them. They are thus prepared to institute a comparison between our meagre plans of teaching and those recognized in the colleges of other countries.

These remarks are offered in no captious fault-finding temper, but with that regard for the general good of the profession and the advancement of medical science which should animate every member of the Association. It is to be regretted that the colleges have not responded as generally or as cordially to the recommendations of the Association, in reference to medical education, as was desirable. Still, the reform is not the less imperative, and the well intended efforts of this body should not cease until the great object be achieved, and both colleges and preceptors, throughout the country, induced to admit its paramount importance. In the language of a late issue of one of our prominent journals, in allusion to the present meeting, "The Association should not fail to maintain its jurisdiction in all matters pertaining to medical education. Let it reassert the propositions which it adopted at its last session, and enforce compliance with them."

In the examination before the Army and Navy Boards, a proper regard has always been had to the qualifications of those proposing to enter either branch of the science. Few comparatively of the candidates are finally accepted, although graduates of colleges in respectable standing. Each department has a series of regulations and requirements which are invariably enforced. In the army the Board of Examiners is expected, in execution of the duty assigned them, rigidly to scrutinize the pretensions of each candidate; taking into careful consideration his physical qualifications and moral

habits, as well as his professional attainments, and to report favorably upon no case admitting of a reasonable doubt. "The Board will report the positive merit of the candidates in the several branches on which they may be examined, and their relative merit from the whole examination; agreeably to which they will receive their appointment and take rank in the department." If the candidate fail, he may be admitted to a second examination two years after, but if then unsuccessful, his name is finally dropped. If accepted, he becomes Assistant Surgeon in the army, but in five years is again examined for the post of Surgeon, when, if unsuccessful, his connection with the service is at once ended.

The certificate issued by the existing medical bureau of the army, and to which every applicant for examination must first subscribe, is as follows:—

I, _____, a candidate for the appointment of Assistant Surgeon of the United States Army, do hereby declare that I was _____ years of age on the _____ day of _____ last; that I labor under no mental or physical infirmity, nor disability of any kind, which can in any way interfere with the most efficient discharge of my duties in any climate; and—

1st. That I have the degree of A. M. or A. B. from the _____, dated _____

2d. That I have the degree of M. D. from the _____, dated _____

3d. That I have attended the clinical course of instruction at the _____ Hospital.

4th. That I have been resident physician in _____ Hospital for _____ months.

5th. That I have attended _____ courses of lectures on Military Surgery and Hygiene.

Signature :

Date :

Place of Residence :

NOTE.—The 1st and 4th of the numbered requirements are not essential prerequisites for examination, but will be taken into consideration in making up the finding.

In the requirements the character and extent of the examinations are clearly stated.

The candidates are examined on the branches usually taught in

our medical schools; also on their literary and scientific attainments, embracing a grammatical knowledge of the English language, Latin, and natural philosophy (or physics), which are deemed important branches to those entering on the study of a liberal profession. Each candidate is required, as introductory to his examination, to prepare, in writing, a brief, extemporaneous description of the causes, symptoms, pathology, treatment, &c. of such disease as may be assigned by the Board, together with one or more prescriptions proper in the case, written out in form for the apothecary.

"In the several branches enumerated, the candidate is required to be well grounded. The examinations are conducted with the view of ascertaining the measure of his natural endowments, his general professional intelligence, as well as his exact knowledge, his practical ability and strength of judgment."

The medical department of the army has been always active in promoting the cause of science, and much credit is due for the useful contributions embraced in the published statistics, especially those upon medical topography and meteorology. From Jan., 1819, to Jan., 1839, reports were regularly made to the Medical Bureau of the Army, "thus affording the means, in connection with the returns in the Adjutant-General's office, not only to investigate morbid action by the numerical method, but to show its relation with climate. As these diversified facts admit of classification according to certain geographical limits, the results, it is hoped, will furnish some general laws towards a basis of a system of *medical geography*." From 1839 to 1855 the report was under the direction of Surgeon R. H. Coolidge, a highly distinguished member of the corps, as also the volume of statistics from 1855 to 1860. They form a most valuable body of papers upon the sanitary condition of the various army posts, the natural history of the different sections of the frontier country, an important consolidated summary of observations on mind and matter, temperature and rain tables, and other useful meteorological data. Special reference is made in the army regulations for the medical department, to the important duties of Surgeons and Assistant Surgeons in connection with their important branches of science, "connected," observes the last paragraph, "with meteorology and many interesting subjects of inquiry, which can only be elucidated by wide-spread, simultaneous observations. The medical officers of the army are, therefore, confidently directed to co operate in the collection of data tending to

advance the interests of science. In the accuracy of these observations (quoted as they will be both at home and abroad), it is hardly necessary to say the reputation of the department is pledged."

At no period in our national history has the medical department of the army been more thoroughly penetrated by a spirit of improvement and progress; and while the war now being waged, to crush out a most unholy rebellion against a most beneficent government, may leave many bleeding hearts at its close, it will have resulted in untold compensating advantages, not the least of which will be the onward impulse communicated to American medicine and surgery. To the distinguished and enterprising chief of the Army Medical Bureau, Surgeon-General William A. Hammond, is due the credit of having inaugurated many wholesome reforms and stimulated a spirit of improvement unexcelled in its former history. While superintending the vast practical machinery of the department over which he presides, he has not been insensible to the medico-literary claims upon his position. Early in the present national struggle, he projected a surgical history of the war, to be composed of contributions from the entire medical staff of the army and edited by an able member of the corps.

The extent of this collation of valuable surgical *materiel*, and its immense importance to the profession at large, cannot be adequately appreciated.

Simultaneously with this movement a request was communicated to the medical officers of the regular and volunteer corps, to prepare and forward such specimens as they might be possessed of, to a proposed army medical and surgical museum located at the Surgeon-General's office in Washington. The specimens were divisible into two classes:—

1. *Specimens illustrative of surgical injuries and affections; such as—*

Fractures, compound and simple—fracture of the cranium.

Excised portions of bone.

Diseased bones and joints.

Exfoliations, especially those occurring *in stumps*.

Specimens illustrative of the structure of stumps (obliterated arteries, bulbous nerves, rounded bones, etc.).

Integumental wounds of entrance and of exit, from both the round and conoidal ball.

Wounds of vessels and nerves.

Vessels obtained subsequent to ligation and to secondary hemorrhage.

Wounded viscera.

Photographic representations of extraordinary injuries, portraying the results of injuries, operations, or peculiar amputations.

Models of novel surgical appliances, and photographic views of new plans of dressing.

2. *Specimens of disease*:—

Specimens illustrating morbid processes of every kind; especial consideration being paid, however, to the degree in which the morbid condition will probably be demonstrable in the preparation when preserved. All unnecessary or extraneous appendages to be dissected away. In addition to specimens of diseased organs, malformations, parasites, concretions and calculi are desirable. Microscopical specimens should, for uniformity's sake, be mounted on slips of glass three inches by one inch.

To Surgeon J. H. Brinton, U. S. Vol., was committed the special charge of this collection, which, under his active and judicious management, consists of thirteen hundred and forty-nine objects. "Of these," Dr. Brinton informs us, in his published report, "nine hundred and eighty-five are surgical specimens, one hundred and six are medical, and one hundred and thirty-three are missiles, which, for the most part, have been extracted from the body. This latter class includes round and conical bullets, shot, grape, canister, fragments of shell, arrows, arrowheads, etc. Every object in the museum has been appropriately and permanently mounted—the dried preparations on stands, and the wet ones in glass anatomical jars, of the most approved patterns, and constructed for the purpose. Every specimen bears a label, on which is inscribed its catalogue number, and the name and rank of the medical officer from whom received."

This museum is still receiving additions, and must become, at no distant period, the most extensive, interesting, and instructive collection of the kind in the world.

The Surgeon-General has, moreover, exhibited extraordinary activity in banishing charlatanism and quackery from the army, and elevating the standard of ability in the corps. Medical examining boards have been organized in all parts of the country, before whom are summoned those against whom charges may have been preferred of immorality or incompetency. Their qualifica-

tions are thoroughly sifted, and should they fall below the prescribed standard, they are at once dropped from the service.

But the most important act of Dr. Hammond's administration is the organization of a national military college, for the purpose of educating more thoroughly candidates for the responsible position of Army Surgeon. The plan is nearly perfected; it is the intention to procure suitable buildings and open the institution early in October, proximo. The subjects to be taught are Military History and Physiology, Military Surgery, Hygiene, and Medical Jurisprudence and Toxicology. The chairs, four in number, have been already filled by surgeons of the army, whose acknowledged erudition and ability furnish the strongest guarantee that the instruction will be commensurate with the fullest requirements of the day. Connected with the College will be the extensive museum, already referred to, and extensive medical and surgical clinics, which, at this time, are especially suggestive and improving. Medical cadets are required to attend the lectures, and medical officers of higher grade may do so at their option. Civilians admitted to matriculation must exhibit evidence of having graduated at some respectable medical school, and must, further, subscribe the intention to unite with the army. The college is not designed, of course, to compete or conflict with any of the other medical institutions of the country, but will be complementary to them.

In the naval Medical Bureau a similar regard is had to the qualifications of candidates, and the strictness of the examination is shown by the number rejected. A valuable statement may be found in the first volume of the *Transactions of the American Medical Association*, drawn up by two very distinguished surgeons of the navy, Drs. Wood and Pinkney. This paper states distinctly the conditions and requirements of examination for the medical branch of the navy. "The attention of the Board," declares the precept by which they are convened, "will be directed to moral character as well as to scientific and other attainments; and it will be its duty to make the examination full, minute, and rigid. The circular to candidates is as follows:—

"For the information of the Board, you will state in your own handwriting, the place of your birth, your age, the State of which you are a citizen, and the names of the institutions in which your general education has been acquired. If a graduate of arts, please state from what college you received your diploma. Besides En-

glish, what languages have you studied? If you have studied Natural History, please state what branches.

"State the name of your medical preceptor, and the time devoted by you to the study of medicine. If a graduate, of what institution? What period of time have you devoted to practical anatomy or dissection? What opportunities have you had to witness the practice of medicine and surgery? What opportunity, if any, have you had to become acquainted with pharmacy and the physical properties of drugs?

"You will state, on your honor, whether you are obnoxious to any hereditary disease whatever; especially, whether any of your immediate family has suffered from pulmonary disease, epilepsy, insanity, or paralysis: and you will also state whether your general health is good, and whether you are free from constitutional disease and local affection, such as hernia, &c. You will furnish satisfactory evidence that your moral and social habits and character are good."

In connection with the subject of medical education, it is proper I should notice the neglect of two departments of medical science the importance of which cannot be overrated. I mean Hygiene and Medical Jurisprudence. In many of the schools these branches are not taught, and in others very imperfectly. It is creditable to the Association that, at its first regular session, a standing committee was appointed on Public Hygiene. The various reports upon this subject, ably prepared, embody much information of value. Hygiene, in the variety of its subdivisions, is illimitable. As yet, the field of investigation has hardly been entered by the curious explorer. Its intimate relation to the preservation of human life, individual and in the aggregate, renders it of vast interest to him whose mission is to prevent disease as well as cure it. A knowledge of hygiene implies an intimate acquaintance with etiology. We must understand the morbid influences which affect the body before we can deduce the principles of hygiene designed to arrest them. The relation of hygiene to endemic and epidemic disorders opens a wide scope of investigation as to their varieties, the agencies which produce them, their characteristics, and the peculiar laws by which they are governed. While its sanitary importance, in the construction and ventilation of private dwellings, hospitals, and public buildings; the qualities of water; drainage; public nuisances and their correction; disinfectants and their influence on the spread of contagion; with a multitude of other equally important topics, renders it not only one of the most interesting but

useful of the sciences. The necessities and results of the present war have especially invoked the aid of hygienic principles in the management of large bodies of troops with a view to health, and the proper regulation of camps and hospitals. The late printed certificate, which every candidate for admission into the medical staff of the army is expected to subscribe before admitted to examination, demands that he shall have attended so many courses of lectures on hygiene. This will necessitate the establishment of a chair for instruction in this important branch of medicine, in connection with all the schools, since no graduate can hope to enter the army who has not been publicly taught in its principles. But one text-book of any value has been known to the profession for a series of years. I refer to the admirable but limited treatise of Professor Dunglison. A more comprehensive work, embracing all the recent additions to hygienic science is now passing through the press, which cannot fail to attract the attention of the profession. It is the emanation of a mature intellect full of resources upon the subject of which it treats, and will constitute an additional proof of the surprising industry and ability of the present chief of the Medical Bureau of the army.

The principles of Medical Jurisprudence are so frequently tested in the most public manner that attention to this important part of our science is really most desirable. Ignorance upon this subject often brings the physician into disgrace and the profession into disrepute.

There is one feature connected with medical testimony in the courts, to which I here allude, although not perhaps strictly germane to the object of this essay. I refer to the mode by which the value of medical opinions is weighed and tested in courts of justice. A half dozen physicians, of variant ability, are summoned as *experts*, in a case involving intricate propositions in science, which educated persons only are competent to solve, and not unfrequently a human life depends upon the decision. And who, it may be asked, are the judges? A jury of twelve men, taken from less than the average minds of community. In the opinion of such individuals one doctor is quite as good as another, and the verdict is accordingly determined by the numerical preponderance of the witnesses, and not from their comparative intelligence and acquirements. Of these qualities they cannot indeed be considered competent judges. There is in all this a double injustice. It fails to protect the man of true merit, exalting the pretentious quack,

while the ends of law and justice are unanswered or perverted. It is quite time some measure had been taken to remedy a growing evil, involving, in an eminent degree, the dignity, honor, and respectability of the profession.

In concluding this report, hastily thrown together, I cannot too strongly urge the necessity of association as one of the most powerful means by which at last it may accomplish a more thorough system of instruction and a more wide-spread zeal for the advancement of the science. Medical societies, both State and county, should be liberally encouraged and fostered. They bring together resources and facilities impossible of accomplishment by the individual, and exercise a healthy influence and wholesome restraint upon medical institutions and modes of practice within the circle of their operation. To the members themselves, such societies are invaluable. The attrition of mind with mind in stated discussions upon medical topics; the use of books and periodicals not otherwise accessible; these and other advantages cannot fail to promote the cause of medical education; while, in the light of social intercourse, men in the same vicinage learn to know and appreciate each other's worth, thus extending the courtesies and amenities, which should ever characterize our noble profession. Comparatively few practitioners acquire much from books, after graduation, without some extraordinary stimulus to rouse them from the inertia and idleness into which they so often glide almost insensibly. This is so with those who move smoothly along in the routine of city practice, year after year, depending rather upon the superior attainments and convenient judgment of professional colleagues than upon individual application and habits of thought. But in country practice it is emphatically the case. The desire for advancement rarely survives long. If the necessary interruptions of business, and the non-appreciation of learning by a rustic population, do not destroy or prevent habits of study, the temptations to dissipation, gossip, cards, politics, &c., so difficult to resist in the country, soon exert their paralyzing effects upon the mind. To all these the Medical Society comes as a healthy stimulus to exertion, and a blessed remedy for all the irregularities of the erratic practitioner. The principle of combination, well sustained and extensively diffused, is of vital moment to the moral influence of this great Association, to which all others are subordinate. It is the only mode by which public institutions for teaching medicine, refusing to co-operate with us cordially in the plans of education proposed, shall

at length be compelled to yield to the moral pressure of organized associations in different portions of the land.

The following resolutions for the consideration of the Association, conclude the report:—

Resolved, That a thorough preliminary education in Latin, mathematics, and physics constitutes an essential prerequisite to the admission of a student of medicine into the office of a medical preceptor, or as a matriculant of a respectable medical college.

Resolved, That the advancement of medical education demands a more extended and symmetrical course of instruction in the colleges, and a more thorough and impartial examination for the degree of Doctor of Medicine than at present prevails.

Resolved, That medical jurisprudence and hygiene are highly important branches of medical science, deserving the careful consideration of all medical teachers and schools.

Resolved, That societies for medical improvement, State, district, and county, are important auxiliaries to the advancement and promotion of science, and are therefore highly recommended by this body as valuable levers in the cause of medical education.

Respectfully submitted,

CHRISTOPHER C. COX.

R E P O R T

OF THE

COMMITTEE ON MEDICAL LITERATURE.

BY

CHARLES A. LEE, M. D.

REPORT OF THE COMMITTEE ON MEDICAL LITERATURE.

THE last report on Medical Literature was made to this Association at its annual meeting at New Haven, June 5th, 1860. From that time to the present, such has been the disturbed state of the country, either from threatened or actual civil war, that there has been but comparatively little encouragement for writers or publishers to enter upon new literary enterprises of any kind. But, notwithstanding the discouragements thus created, it will be seen that several very valuable new works have issued from the press, especially pertaining to military hygiene and surgery. Several new editions of native text-books have appeared, while a considerable number of new foreign publications have been issued, as well as more recent editions of European works already published. As might have been expected, our periodical medical literature has suffered in a greater degree than any other department of medical publishing.

When we look back at the thirteen annual meetings of this Association since its organization in 1847, and review the thirteen volumes of its *Transactions* since published, it is a source of congratulation to reflect, that a spirit of harmony and friendship has characterized its meetings, and the utmost cordiality and good feeling prevailed among its members; no root of bitterness has sprung up among us; no sectional feeling exhibited; the great interests of medical science and humanity have been paramount; a feeling of common brotherhood, growing out of our mutual interests, pursuits, and trials, has bound our hearts in one bond of sympathy; and had the same kind, fraternal feeling extended in an equal degree to all classes of our people, in every part of our extended country, the clash of civil arms would not have been heard in our borders, and our whole country would have continued

on its magnificent, triumphal march of greatness, power, and prosperity with accelerated speed. Our profession, then, may, with justice, be exonerated from all responsibility in the civil conflict in which we are now engaged. We have no censures to pass upon our Southern brethren. That they have freely tendered their humane and scientific services to the armies of their own section, including, as they do, their sons, brothers, friends, and neighbors, was to have been expected. It was no more than their duty under the circumstances in which they were placed. They would have been more or less than men, had they done otherwise than they have done. The interests of humanity demanded this at their hands; and it is safe to predict that, when this unhappy conflict shall have ended, our united profession will again rally as a band of brothers, and will again join hearts and hands in friendly harmony and in common efforts to advance the interests of science.

There is, then, ample evidence that our profession has not been idle or dormant during the last three years: although medical study, observation, and research have been directed into new channels. The skill, science, and efficiency of several thousands of our medical men have been practically tested, both on the battle and tented field, as well as in the routine of hospital duty, and, as a general rule, they have stood the test successfully. Called to the discharge of specific duties, without special preparation, the medical staff of our army has not proved deficient either in zeal, energy, or adequate skill. The grand results of their labors and experience are yet to be gathered up and laid before the world, by the distinguished writers to whom this special duty has been officially assigned; but enough has already been published by individuals to excite a confident belief, that most important accessions to military medicine and surgery will grow out of the present war.

When the Committee on Medical Literature was first appointed in 1847, it was assigned as their special duty to prepare "a report on the general character of the periodical publications of the United States, in reference to the more important articles therein presented to the profession, on American medical publications, on medical compilations and compends by American writers, on American reprints of foreign medical works, and on all such measures as may be deemed advisable for encouraging and maintaining a national literature of our own."

The last of these topics has been so ably and fully discussed in several former reports, especially in that of 1860, that your Com-

mittee do not deem it necessary or expedient to enter upon it at any length at the present time. The whole field has been thoroughly traversed in former years, and those who desire to see all that can be said on these subjects, will doubtless consult the preceding volumes of the *Transactions*.

GENERAL CHARACTER OF THE PERIODICAL MEDICAL PUBLICATIONS OF THE UNITED STATES.

No important benefit, it is conceived, would result from an extended discussion of this subject, for reasons above stated in regard to other topics. The general character of these publications has undergone little, if any change, during the period which has elapsed since the last report. So far as any change has been observed, it indicates a higher standard of authorship, and more judicious selection of topics. Originality is more sought after, and our young physicians are not so ambitious of seeing their lucubrations in print, unless they have something new or important to offer. One new feature, however, is especially prominent. Vastly more space has been devoted to military surgery and army medical experience, growing out of the exigencies of the times, and very little discussion of a purely theoretical character has been permitted to see the light. The communications are shorter and of a more practical nature, while those long and tedious essays which used to lumber the pages of our periodicals, have almost wholly disappeared. All this indicates improvement, and if the same progress goes on for a few years longer, we shall hope to reach the perfection of French medical journalism, where nothing but what is new is allowed to see the light. We are happy to notice, also, a more wise and liberal spirit in editorial management, an almost entire absence of personalities, which formerly disgraced some of our medical journals. The notices and reviews of books are, also, more just, discriminating, and independent, while we less frequently meet with those stereotyped phrases of commendation so liberally showered on every new production. It is indeed worthy of special notice, that so little, if any space, is, at present, allowed for the indulgence of personal spite and malice, and that medical criticism is regulated by a higher standard. Considering that there is but one medical periodical in the country that pays for original articles, it is certainly highly honorable to our profession that it furnishes so many able writers for their papers.

Periodical Medical Publications of the United States.

The medical periodical literature of the United States has been greatly curtailed by the present war. At the present time, so far as your Committee can ascertain, there are but twenty original medical journals (including pharmaceutical and dental) published in this country; while at the commencement of the war there were at least fifty. No medical periodical, so far as known, is now published in any of the Confederate States, or even in any State that has formally passed an Act of Secession from the United States. Ten medical journals have been, during the last three years, discontinued in States still adhering to the Union.

MEDICAL PERIODICALS AT PRESENT PUBLISHED IN THE UNITED STATES.

Where published.	Title.
Philadelphia.	1. The American Journal of the Medical Sciences.
"	2. Medical and Surgical Reporter.
"	3. American Journal of Pharmacy.
"	4. Medical News and Library.
"	5. The Dental Cosmos.
New York.	6. American Medical Times.
"	7. American Journal of Ophthalmology.
"	8. American Druggists' Circular.
Boston, Mass.	9. The Boston Medical and Surgical Journal.
Utica, N. Y.	10. The American Journal of Insanity.
Buffalo, N. Y.	11. The Buffalo Medical and Surgical Journal.
Columbus, Ohio.	12. Ohio Medical and Surgical Journal.
Cincinnati.	13. The Cincinnati Lancet and Observer.
"	14. The Cincinnati Medical and Surgical News.
"	15. Dental Register of the West.
"	16. Eclectic Medical Journal.
Chicago, Ill.	17. The Chicago Medical Journal.
"	18. The Chicago Medical Examiner.
San Francisco, Cal.	19. The Pacific Medical and Surgical Journal.
"	20. The San Francisco Medical Press.

AMERICAN MEDICAL PERIODICALS DISCONTINUED SINCE 1860.

Place of late publication.	Title.
Philadelphia.	1. The North American Chirurgical Review.
New York.	2. American Medical Monthly.
"	3. American Medical Gazette.
"	4. The Journal of Materia Medica.
"	5. Medical Press.
Cleveland, Ohio.	6. The Cleveland Medical Gazette.
Bridgeport, "	7. Belmont Medical Journal.
Columbus, "	8. The Columbus Review of Medicine and Surgery.
Detroit, Mich.	9. The Peninsular Journal of Medicine.
Nashville, Tenn.	10. Journal of Medicine and Surgery.
"	11. Medical Record.

AMERICAN MEDICAL PERIODICALS DISCONTINUED SINCE 1860.

Place of late publication.	Title.
Savannah, Ga.	12. Journal of Medicine.
"	13. Medical and Surgical Encyclopedia.
	14. Oglethorpe Medical and Surgical Journal.
Atlanta, Ga.	15. The Atlanta Medical and Surgical Journal.
Charleston, S. C.	16. Charleston Medical Journal and Review.
Edenton, N. C.	17. Medical Journal of North Carolina.
Richmond, Va.	18. The Virginia Medical Journal.
"	19. The Maryland and Virginia Medical Journal.
Louisville, Ky.	20. Monthly Medical News.
"	21. Louisville Medical Journal.
Kansas City.	22. Kansas City Medical and Surgical Review.
St. Joseph's, Mo.	23. Journal of Medicine and Surgery.
St. Louis Mo.	24. St. Louis Medical Journal. ¹

In addition to the periodicals still published, the New York Academy of Medicine has issued nineteen numbers of their *Bulletin*, forming Vol. I.; and five numbers of Vol. II. The Medical Society of Philadelphia has also continued the publication of their valuable *Transactions*. The State medical societies of the North and West have also issued their annual volumes of *Transactions*, while the local societies have been equally active, and the usual annual reports of our various lunatic and idiotic asylums and other charitable associations have regularly appeared. The limits of this review necessarily preclude a consideration of the contents of these publications.

AMERICAN MEDICAL PUBLICATIONS SINCE THE YEAR 1860.

New Works.

The following list embraces the titles of all the new native medical works which have appeared in the United States since the last report, that have come within the notice of your Committee. There are doubtless others which have escaped their attention; but it is believed, if such there are, that they will be found of secondary importance. Proximate accuracy is all that can be expected:—

¹ Making a total of 24, against 20 published at the present time.

AMERICAN MEDICAL PUBLICATIONS SINCE THE YEAR 1860.

Publishers.	NEW WORKS.
Blanchard & Lea, Philadelphia. “ “ “ “ “ “ “ “	1. On Diseases Peculiar to Women; including Displacements of the Uterus. By Hugh L. Hodge, M. D., Professor, &c. 2. The Pathology and Treatment of Venereal Diseases; including the Results of Recent Investigations upon the Subject. By Freeman J. Bumstead, M. D. 3. Therapeutics and Materia Medica; a Systematic Treatise on the Action and Uses of Medicinal Agents, including their Description and History. By Alfred Stillé, M. D. Philadelphia, 1860. 4. Introductory Lectures and Addresses on Medical Subjects. By George B. Wood, M. D. 5. Memoranda Medica; or, Note Book of Medical Principles, &c., for the Use of Students. By Henry Hartshorne, M. D.
Ivison & Phinney, New York.	6. Introduction to Structural and Systematic Botany and Vegetable Physiology. By Asa Gray, M. D. 1860. pp. 555. 7. Bed Case. By W. Channing. Boston, 1860.
J. B. Lippincott & Co., Philadelphia. “ “ “ “ “ “ “ “ “ “ “ “ “ “ “ “ “ “ “ “	8. A Manual of Military Surgery; or, Hints on the Emergencies of Field, Camp, and Hospital Practice. Illustrated. By S. D. Gross, M. D. 9. The Principles and Practice of Surgery, &c. By H. H. Smith, M. D. 10. Placenta Prævia; its History and Treatment. By Wm. Reed, M. D. 11. A Treatise on Hygiene, with especial reference to the Military Service. By William A. Hammond, M. D., Surgeon-General U. S. A. 12. A Manual of Instruction for Enlisting and Discharging Soldiers, with especial reference to the Medical Examination of Recruits and the Detection of Disqualifying and feigned Diseases. By R. Bartholow, M. D., Assistant Surgeon U. S. A. 13. Lectures on the Physiology and Pathology of the Central Nervous System. By C. E. Brown-Séquard, M. D., F. R. S. 14. Lectures on the Diagnosis and Treatment of the Principal Forms of Paralysis of the Lower Extremities. By C. E. Brown-Séquard, M. D., etc. 15. An Elementary Treatise on Human Anatomy. By Joseph Leidy, M. D. 16. Physiological Memoirs. By Wm. A. Hammond, M. D., Surgeon-General U. S. A. 17. A Manual of Minor Surgery. By John H. Packard, M. D. 18. The Hospital Steward's Manual, for the Instruction of Hospital Stewards, &c. By Joseph J. Woodward, M. D.
Lindsay & Blakiston, Philadelphia. “ “	19. A Treatise on the Practice of Medicine. By Edwin R. Maxon, M. D. 20. Lives of Eminent American Physicians and Surgeons of the Nineteenth Century. Edited by S. D. Gross, M. D.

AMERICAN MEDICAL PUBLICATIONS SINCE THE YEAR 1860.

Publishers.	NEW WORKS.
Lindsay & Blakiston, Philadelphia.	21. Theory and Practice of the Movement Cure; or, the Treatment of Lateral Curvature of the Spine, &c., by the Swedish System of Localized Movements. By Charles F. Taylor, M. D.
" "	22. The Pharmacopœia of the United States of America. Fourth decennial revision. By authority of the National Convention for revising the Pharmacopœia. Washington, 1863.
S. S. & W. Wood, New York.	23. The Principles and Practice of Obstetrics. By G. S. Bedford, M. D.
" "	24. Report of Professor V. Mott's Surgical Cliniques in the University of New York. Session 1859-60. By S. W. Francis, M. D.
" "	25. A Practical Treatise on the Etiology, Pathology, and Treatment of the Congenital Malformations of the Rectum and Anus. By Win. Bodenhamer, M. D.
" "	26. Quackery Unmasked. By Daniel King, M. D.
" "	27. Researches and Observations on Pelvic Hæmatocele. By J. Byrne, M. D.
Ballière Brothers, New York.	28. A Practical Treatise on Military Surgery. By Frank Hastings Hamilton, M. D.
" "	29. Handbook of Surgical Operations. By Stephen Smith, M. D.
" "	30. Dentition and its Derangements: a Course of Lectures delivered in the New York Medical College. By A. Jacobi, M. D.
" "	31. On Diphtheria. By James Wynne, M. D.
Ticknor & Fields.	32. Another Letter to a Young Physician: to which are appended some other Medical Papers. By James Jackson, M. D.
" "	33. A Practical Guide to the Study of Diseases of the Eye: their Medical and Surgical Treatment. By Henry W. Williams, M. D.
Gould & Lincoln.	34. Health: its Friends and its Foes. By R. D. Mussey, M. D., etc.
Wm. A. Townsend, New York.	35. Cuba for Invalids. By R. W. Gibbs, M. D.
Pickey, Mallory & Co., Cincinnati.	36. A Practical Treatise on Phthisis Pulmonalis: embracing its Pathology, Causes, Symptoms, and Treatment. By L. M. Lawson, M. D.
R. Clark & Co., Cincinnati.	37. Handbook for the Military Surgeon. By Charles S. Tripler, M. D., Surgeon U. S. A., and George C. Blackman, M. D.
C. B. Norton, New York.	38. Surgical and Practical Observations on the Diseases of the Human Foot, with Instructions for their Treatment. By J. Zacharie.
" "	39. Proceedings of the American Pharmaceutical Association, at the Ninth Annual Meeting, held in the City of New York, September, 1860. pp. 728.

AMERICAN MEDICAL PUBLICATIONS SINCE THE YEAR 1860.

Publishers.	NEW WORKS.
C. B. Norton, New York.	40. A Catalogue of the Pathological Cabinet of the New York Hospital, classified and arranged. By Robert Ray, Jr., M. D., Curator. pp. 364.
John Wiley, New York.	41. The Breath of Life; or, Mal-Respiration and its Effects upon the Enjoyments and Life of Man. By George Catlin.
D. Appleton & Co., New York.	42. Hints on the Preservation of Health in Armies. By John Ordronaux, M. D. 1861.
" "	43. A Manual of Etherization, &c. By Charles T. Jackson, M. D. 12mo. Boston, 1861.
Lever & Francis, Boston, Mass.	44. First Outlines of a Dictionary of the Solubilities of Chemical Substances. By T. H. Storer, M. D.
" "	45. Statistical Report on the Sickness and Mortality in the Army of the United States; compiled from the Records of the Surgeon-General's Office: embracing five years. By Richard H. Coolidge, M. D., Ass. Surg. U. S. A. Washington, D. C.
" "	46. Manual of Instructions for Military Surgeons on the Examination of Recruits and Discharge of Soldiers. 12mo. New York. By John Ordronaux, M. D.
" "	47. Manual of Military Surgery. By Professor Chisholme, M. D., of Charleston, S. C. Richmond, Va.

AMERICAN MEDICAL PUBLICATIONS SINCE THE YEAR 1860.

Publishers.	NEW EDITIONS.
Blanchard & Lea, Philadelphia.	1. Practical Treatise on Fractures and Dislocations. By Frank Hastings Hamilton, M. D., etc. Second revised edition.
" "	2. Obstetrics, The Science and the Art. By Charles D. Meigs, M. D., etc. Fourth edition revised.
" "	3. A Treatise on Human Physiology. By John C. Dalton, M. D., etc. Second edition revised and enlarged.
" "	4. A System of Surgery: Pathological, Diagnostic, Therapeutical, and Operative. By Samuel D. Gross, M. D., etc. Second edition much enlarged.
" "	5. On Bandaging and other Operations of Minor Surgery. By F. W. Sargent, M. D. New edition. With an additional Chapter on Military Surgery. By Wm. F. Atlee, M. D.
Ticknor & Fields, Boston.	6. Electro-Physiology, and Electro-Therapeutics; showing the best methods for the Medical Uses of Electricity. By Alfred C. Garrett, M. D. Second edition, 1861.
Kay & Brothers, Philadelphia.	7. A Treatise on Medical Jurisprudence. By Francis Wharton and Moreton Stillé. The Medical Part revised and corrected, with numerous additions. By Alfred Stillé, M. D. Second edition.
S. S. & W. Wood, New York.	8. Lectures on the Materia Medica and Therapeutics. By John B. Beck, M. D. Third edition.

AMERICAN MEDICAL PUBLICATIONS SINCE THE YEAR 1860.

Publishers.	NEW EDITIONS.
S. S. & W. Wood, New York.	9. The Principles and Practice of Obstetrics. By Gunning S. Bedford, M. D. Third edition.
" "	10. Clinical Lectures on the Diseases of Women and Children. By G. S. Bedford, M. D. Seventh edition, 1862.
Harper & Brothers, New York.	11. The Institutes of Medicine. By Martyn Paine, M. D. Seventh edition.
Lindsay & Blakiston, Philadelphia.	12. A Practical Treatise on Dental Medicine; being a Compendium of Medical Science as connected with the Study of Dental Surgery. By T. E. Bond, M. D. Third American edition, 1863.
" "	13. The Medical Student's Vade Mecum. A Compendium. By George Mendenhall, M. D. Seventh edition, pp. 692.
" "	14. Contributions to Operative Surgery and Surgical Pathology. By J. M. Carnochan, M. D.

THE MORE IMPORTANT MINOR MEDICAL PUBLICATIONS AND PAMPHLETS
SINCE THE YEAR 1860.

1. Brief Plea for an Ambulance System for the Army of the United States. By Henry J. Bowditch, M. D. Boston, 1862.
2. A Few Remarks on the Primary Treatment of Wounds received in Battle. A Report to the Surgeon-General of Massachusetts. By George H. Gay, M.D., Surgeon Massachusetts General Hospital. Boston, 1862.
3. Reports of the Surgeon-General of the United States Army. Washington, D.C.
4. Reports concerning the Aid and Comfort given by the U. S. Sanitary Commission to Sick Soldiers, passing through Washington, D. C. By F. N. Knapp, Special Relief Agent.
5. Reports of the Inspectors and Relief Agents of the Sanitary Commission, after the Battle of Fredericksburg, Dec. 13, 1862. By J. H. Douglass, M.D., and C. W. Brink, M. D.
6. Report of Lewis H. Steiner, M. D., Inspector of the Sanitary Commission; containing a Diary kept during the Rebel occupation of Frederick, Md., and an account of the Operations of the United States Sanitary Commission during the campaign in Maryland, Sept. 1862.
7. First Report of the Commission of Special Inspection of the General Hospitals of the Army. By Henry G. Clark, M. D. Washington, D. C., 1862.
8. Quinine, as a Prophylactic, or Protective from Miasmatic Poisoning. By Stephen Rogers, M. D. Albany (1862).
9. The History, Preparation, and Therapeutical Uses of the Citro-Ammoniacal Pyrophosphate of Iron. By E. N. Chapman, M. D.
10. Is Tracheotomy in True Croup a Justifiable Operation? By John O'Reilly, M.D.
11. The Chicago Sanitary Commission Reports. Catalogue of the Army Medical Museum, Surgeon-General's Office, Washington, D. C. Report on the Treatment of Acute and Chronic Diarrhœa with the Subnitrate of Bismuth. By John B. Trask, M. D. San Francisco, 1862.
12. Complete Record of the Surgery of the Battles fought near Vicksburg, Dec. 27, 28, 29, and 30, 1862. By E. Andrews, M. D.
13. Hospital Notes and Memoranda; in Illustration of the Congestive Fever (so called), or Epidemic Cerebro-Spinal Meningitis, as it occurred in the winter and spring of 1862-63, in the Camps in and around the town of Newbern, N. C. With some account of its Origin, Nature, and Treatment. By J. B. Upham, M. D. Boston, Mass., 1863.

THE MORE IMPORTANT MINOR MEDICAL PUBLICATIONS AND PAMPHLETS
SINCE THE YEAR 1860.

14. Poisoning by Aconite. Synopsis of the Trial of Hendrickson for the murder of his wife. By John Swinburne, M. D. Albany, N. Y., 1862.
15. Conservative Surgery; with a List of the Medical and Surgical Force of New York in the War of the Rebellion, 1861-2, etc. By Sylvester D. Willard, M. D. Albany, 1862.
16. Malignant Pustule in the United States. By A. N. Bell, M. D. Albany, 1862.
17. The Inversion of the Capsular Ligament of the Hip-Joint, and its Relation to Intra-Capsular Fracture. By Geo. K. Smith, M. D. New York, 1862, pp. 44.
18. Caries of the Elbow-Joint; Operation of Excision, with the Recovery of a Useful Arm. By N. C. Husted, M. D. New York, 1862.
19. Medico-Legal: An Enquiry concerning the value of Testimony respecting Facts as they appear to a mind partly conscious. By T. L. Wright, M. D. Columbus, 1860.
20. Diet for the Sick and Convalescent. By E. Neal, M. D. Philadelphia, 1862.
21. Medical Testimony in regard to the Proper Mechanical Treatment of Joint Diseases. By H. G. Davis, M. D.
22. Cases in Surgery, Gunshot Wounds, etc. By J. Mason Warren, M. D. Boston, 1862.
23. The Sanitary Condition of the Army of the United States. By Edward Jarvis, M. D.
24. Reports of the Western Sanitary Commission on the General Military Hospitals of St. Louis, Mo., etc. St. Louis, 1862-3.
25. A Description of a newly-invented Elastic Tourniquet, for the Use of Armies and Employment in Civil Practice; its uses and applications. With Remarks on the different methods of Arresting Hemorrhage from Gunshot and other Wounds. Albany, 1862.
26. A Thesis on Hospital Gangrene. By Valentine Mott Francis, M. D.
27. An Essay on Hernia. By James Bryan, M. D.
28. Amputation of the Cervix Uteri. By A. K. Gardner, M. D. New York.
29. Variola; Its Nature and Treatment. By Andrew Nebinger, M. D. Philadelphia, 1862.
30. Researches on the Venom of the Rattlesnake; with an Investigation of the Anatomy and Physiology of the Organs concerned. By S. W. Mitchell, M. D. Smithsonian Institution.
31. Remarks upon the Anatomy and Physiology of Respiration in the Chelonia. By S. W. Mitchell, M. D., and G. R. Morehouse, M. D. Idem.
32. The Excision of Joints. By Richard M. Hodges, M. D. (Boylston Prize Essay.)
33. The Placenta. The Organic Nervous System, the Blood, the Oxygen, and the Animal Nervous Systems, Physiologically Examined. By John O'Rielly, M. D.
34. Microscopic Anatomy of the Lumbar Enlargement of the Spinal Cord. By John Dean, M. D.
35. On the Treatment of Diphtheria, with Illustrative Cases. By E. N. Chapman, M. D.
36. Diphtheria; Its History, Nature, and Treatment. By Wm. Henry Thayer, M. D. Pittsfield, Mass.
37. The Morbid Effects of Retention in the Blood of the Elements of the Urinary Secretion. By Wm. Morland, M. D. Boston.
38. Pain, and Anæsthetics. An Essay. Introductory to the Series of Surgical and Medical Monographs. By Valentine Mott, M. D.
39. A Review of the Case. The People against Rev. Henry Budge, indicted for the murder of his wife. Tried at the Oneida Circuit Court, Aug. and Sept. 1861. By John Swinburne, M. D. Albany.
40. A Report to the Secretary of War, of the Operations of the Sanitary Commission, and upon the Sanitary Condition of the Volunteer Army, its Medical Staff, Hospitals, and Hospital Supplies, Dec., 1861. Washington, D. C.
41. A Lecture. By D. Hayes Agnew, M. D. Philadelphia, 1861.

THE MORE IMPORTANT MINOR MEDICAL PUBLICATIONS AND PAMPHLETS
SINCE THE YEAR 1860.

42. Proceedings of the Pathological Society of Philadelphia, Vol. I., pp. 907. Philadelphia, 1860.
43. The Gorilla; being a Sketch of its History, Anatomy, General Appearance, and Habits. By Leonard J. Sandford, M.D., 1861.
44. The Conservative Treatment of Fractures. By Isidor Gluck, M.D. New York, 1862.
45. Beneficial Results from the Use of Mechanical Appliances in Pott's Disease of the Spine. By Jacob A. Wood, M.D. New York, 1862.
46. Medico-Legal Contributions on Arsenic: Containing Reports of a number of Cases of Arsenical Poisoning, together with an account of the methods employed in their Chemical Examination. By Charles H. Porter, M.D. Albany, 1862.
47. Mortality and Sickness of the U. S. Volunteer Forces. 1861—2.
48. Report of a Committee of the Boston Society for Medical Improvement on the alleged dangers which accompany the Inhalation of the Vapor of Sulphuric Ether. Boston, 1861.
49. Address delivered at the opening of the New Clinical Lecture-Room of the Philadelphia Hospital. By J. Ludlow, M.D. Philadelphia, 1861.
50. The Mensuration of the Human Skull. By J. A. Meigs, M.D. Philadelphia, 1861.
51. The Modus Propagandi of the Human Species Physiologically explained. By John O'Reilly, M.D. New York, 1861.
52. Address on the Epizooti lately prevalent among Swine. By Edwin Snow, M.D. With Results of Post Mortems. By G. L. Collins, M.D. 1861.
53. Eulogy on the late John W. Francis, M.D.; being a Discourse on his Life and Character. By Valentine Mott, M.D. 1861.
54. Treatment of the Fractures of the Long Bones by Simple Extension. By John Swinbourne, M.D. Albany, 1861.
55. Transactions of the Medical Society of the State of New York, for 1860, '61, '62, and '63.
56. Proceedings of the Academy of Natural Sciences of Philadelphia. 1861—'62.
57. Communications of the Rhode Island Medical Society for the year 1861—'62.
58. Transactions of the Medical Societies of Ohio, Illinois, Indiana, Michigan, Pennsylvania, etc., for 1860, '61, '62, and '63.
59. Vesico-Vaginal Fistula. A Translation of Articles published in the Gazette Hebdomadaire. By M. Ar. Verneuil. Boston.
60. Report on Morbus Coxarius, or Hip Disease. By Lewis A. Sayre, M.D. 1861.
61. The Modus Operandi of various kinds of Baths Physiologically explained. By John O'Reilly, M.D.
62. Extracts from the Records of the Boston Society for Medical Improvement. 1861—'62.
63. Biographical Sketches of Deceased Physicians of Westchester County, New York. By Geo. J. Fisher, M.D. 1861.
64. Contributions to the Anatomy of the Spinal Cord. By John B. Trask, M.D. Francisco. 1860.
65. Quarantine Regulations, as approved by the National Quarantine and Sanitary Association of the United States, 1860. Boston, 1860.
66. Observations upon the Form of the Occiput in the various Races of Men. By J. A. Meigs, M.D.
67. Artificial Lactation. By Charles M. Wetherill, M.D. Indianapolis, 1860.
68. To what affections of the Lungs does Bronchitis give origin? By D. D. Slade, M.D. Boston, 1860.
69. On Hemoptysis as a Symptom. By John Ware, M.D. Boston, 1860.
70. An Essay on the Treatment of Phthisis by the Chlorate of Potash; with observations on oxygen as a therapeutic agent, and the exposition of a new theory of Ozone. By E. J. Fountain, M.D. New York, 1860.
71. The Domains of Medical Police. By Louis Elsberg, M.D. New York. 1862.
72. An Address on the Life and Character of the late Charles Edward Isaacs, M.D. By Jos. C. Hutchinson, M.D. New York. 1862.

THE MORE IMPORTANT MINOR MEDICAL PUBLICATIONS AND PAMPHLETS
SINCE THE YEAR 1860.

73. Extension and Counter-Extension in the Treatment of Fractures of the Long Bones, with the Description of an Apparatus especially designed for Compound Fractures. By Joseph H. Vedder, M.D. New York, 1862.
 74. The Action of the Voluntary Muscles. By Louis Mackall, M.D. Alexandria, 1862.
 75. Amputation of the Cervix Uteri. By J. Marion Sims, M.D. New York, 1861.
 76. On the Animal Substances employed as Medicines by the Ancients. By Geo. J. Fisher, M.D. New York, 1862.
 77. Border Lines of Knowledge in some Provinces of Medical Science. By Oliver Wendell Holmes, M.D. Boston, 1862.
 78. Medical Topography of Camden Co., N. Jersey. By O. H. Taylor, M. D.
 79. Reports relating to the Registry and Returns of Births, Marriages, and Deaths, in the States of Rhode Island, Massachusetts, Kentucky, and other States, for years 1860, '61, '62, and '63.
 80. On Medical Provision for Rail Roads, as a Humanitarian Measure, as well as a source of economy to the companies. By Edmund S. F. Arnold, M.D. New York, 1862.
 81. The Sunbeam and the Spectroscope. By Howard Townsend, M. D. Albany, 1863.
 82. Remarks on Hospital Construction, with notices of Foreign Military Hospitals. By Charles A. Lee, M.D.; being the substance of a Report made to the Medical Society of the State of New York. 1863.
 83. Consolidated Treatment of Gunshot Wounds. By John H. Brinton. Washington, 1863.
 84. On the Medical Selection of Lives for Insurance. By Wm. Brinton, M.D.
 85. Artificial Dilatation of the Os and Cervix Uteri, from Fluid Pressure from above, &c. By H. H. Storer, M.D. Boston, 1863.
-

EUROPEAN PUBLICATIONS.

Publisher.	NEW WORKS.
J. B. Lippincott & Co., Philadelphia.	1. Notes on the Surgery of the War in the Crimea. With Remarks on the Treatment of Gunshot Wounds. By Geo. H. B. Macleod, M. D.
" "	2. Commentaries on the Surgery of the War in Portugal, Spain, France, and the Netherlands. By G. J. Guthrie, F.R.S.
" "	3. Anatomy of the Arteries of the Human Body, Descriptive and Surgical, with the Descriptive Anatomy of the Heart. By John H. Power, M.D.
" "	4. A Treatise on Gunshot Wounds. By T. Longmore, Esq., Professor of Military Surgery at Fort Pitt, Chatham, 1862.
Ballière Brothers, New York.	5. Compendium of Human Histology. By C. Morel. Translated and edited by Wm. H. Vanburen, M.D.
" "	6. On Diphtheria. By Edward Y. Greenhow, M.D.
" "	7. Advice to a Mother on the Management of her Offspring. By Pye Henry Chevasse, F.R.C.S.
" "	8. An Epitome of Surgery. By S. B. Gill, M.D. 1860.
" "	9. A Manual of the Detection of Poisons, by Medico-Chem. Analysis. By Dr. F. Jul. Otto, M.D.
Lindsay & Blakiston, Philadelphia.	10. The Pocket Anatomist; being a complete Description of the Human Body for the Use of Students. By M. W. Hilles, 1860. pp. 263.

EUROPEAN PUBLICATIONS.

Publisher.	NEW WORKS.
Lindsay & Blakiston, Philadelphia.	11. A Guide to the Practical Study of the Diseases of the Eye. By James Dixon, F.R.C.S.
Blanchard & Lea, Philadelphia.	12. A Treatise on Fever. By Robert D. Lyons, K.C.C.
" "	13. A Treatise on the Diseases of the Joints. By Richard Barwell, F.R.C.S.
" "	14. Clinical Lectures on Diseases of Women. By J. Y. Simpson, M.D.
" "	15. Chemistry. By William Thomas Brande, F.R.S., and Alfred S. Taylor, M.D.
S. S. & W. Wood, New York.	16. A Handbook of Hospital Practice, or Introduction to the Study of Practical Medicine at the Bedside. By Robert D. Lyons, K.C.C.
" "	17. On Diabetes, and its Successful Treatment. By John M. Camplin, M.D.
R. Carter, New York.	18. Five Lay-Sermons to Working People. By John Brown, M.D. 1862.

EUROPEAN PUBLICATIONS.

Publishers.	NEW EDITIONS.
Blanchard & Lea, Philadelphia.	1. Lectures on the Diseases of Women. By Charles West, M.D. Second American edition, 1862.
" "	2. Anatomy, Descriptive and Surgical. By Henry Gray. Second American edition, 1862.
" "	3. A Manual of Medical Diagnosis; being an Analysis of the Signs and Symptoms of Disease. By A. W. Barclay, M.D. Second American edition. Philadelphia, 1862.
" "	4. A Practical Treatise on the Diseases of the Heart and Great Vessels, including the Principles of Physical Diagnosis. A new edition. By Wm. H. Walshe, M.D. 1862.
" "	5. A Practical Handbook of Medical Chemistry. By J. E. Bowman, F.C.S. Third American edition, 1863.
" "	6. Urinary Deposits; their Diagnosis, Pathology, and Therapeutical Indications. By Golding Bird, M.D. Edited by E. L. Birkett, M.D. 1863.
" "	7. On the Theory and Practice of Midwifery. By Fleetwood Churchill, M.D. With Notes by D. F. Condie, M.D.
" "	8. The Principles and Practice of Modern Surgery. By Robert Druitt, M.R.C.S.
" "	9. A Practical Treatise on Diseases of the Lungs. By Wm. Walshe, M.D. Third American edition.
" "	10. On Diseases of the Skin. By Erasmus Wilson, F.R.S. Fifth American edition.
" "	11. Lectures on the Diseases of Infancy and Childhood. By Charles West, M.D. Third American edition.
" "	12. On Obscure Diseases of the Brain and Disorders of the Mind: their incipient Symptoms, Pathology, Diagnosis, Treatment, and Prophylaxis. pp. 600.
" "	13. Medical Jurisprudence. By Alfred S. Taylor, M.D. With Notes by Edward Hartshorne, M.D. Fifth American edition.

EUROPEAN PUBLICATIONS.

Publishers.	NEW EDITIONS.
Blanchard & Lea, Philadelphia.	14. Clinical Lectures on Certain Acute Diseases. pp. 320.
“ “	15. A Practical Treatise on Diseases of the Ear; their Diagnosis, Pathology, and Treatment. By Joseph Toynbee, F.R.S.
“ “	16. On the Diseases, Injuries, and Malformations of the Rectum and Anus. By T. J. Ashton.
“ “	17. Urinary Deposits; their Diagnosis, Pathology, and Therapeutical Indications. Edited by E. L. Burkett, M.D.
“ “	18. The Principles and Practice of Ophthalmic Medicine and Surgery. By T. Wharton Jones, M.D. Third American edition, 1863.
Lindsay & Blakiston, Philadelphia.	19. The Half-Yearly Abstract of the Medical Sciences. By Wm. H. Ranking, M.D., and C. B. Radcliffe, M.D.
“ “	20. The Action of Medicines in the System. By Frederick William Headland, M.D. Fourth American edition, 1863.
W. A. Townsend, New York.	21. Half-Yearly Abstract of Practical Medicine, Surgery, and Obstetrics. By Wm. Braithwaite.

It appears, from the above list, that forty-six new American medical works have been published since the year 1860, and fourteen new editions of works already issued; while during the same period, eighty-five minor medical publications and pamphlets, eighteen reprints of new foreign works, and twenty-one new editions of foreign medical works have appeared. This, however, gives but a partial view of medical publishing during the last three years. For example, the United States Sanitary Commission has issued more than forty tracts, some of large size, in addition to those already enumerated, and prepared by some of our best medical writers, relating to the hygiene of armies and military surgery; while the Western and Northwestern Sanitary Commissions have put forth numerous publications of a similar kind. Besides this, more than one hundred medical addresses, reports, and essays on various miscellaneous subjects, in addition to those above mentioned, have been issued during the same period.

One very efficient cause for the falling off in medical publications, if there has been such, has been, undoubtedly, the scarcity and high price of paper, and this will probably continue to operate until the conclusion of the war.

The civil conflict, from its very commencement, has made very heavy draughts upon our profession, and especially its younger mem-

bers; whom it has, at the same time, stimulated to higher attainment in all that relates to the health of soldiers, or the scientific treatment of their wounds and diseases. It is, indeed, highly creditable to our profession that it has furnished so many accomplished surgeons and physicians to our armies; it would be strange, indeed, if all were of this character. The establishment of an army medical school at Washington, similar to the British and French medical schools of the same character, is an auspicious event, and one which cannot but be attended with the most beneficial results. Never have our medical societies, both State and local, exhibited greater activity than during the present war. They have all held their regular stated meetings, and the papers and discussions have been unusually interesting. The medical clinics in our schools and colleges have usually had special reference to military medicine and surgery. Increased numbers of young men have entered upon the study of medicine, and the best talent of the country may be said to be enrolled in our ranks. When we consider that during the last three years but a single medical or surgical work has been issued from the press in any part of the Southern Confederacy,¹ we have no reason to be dissatisfied with the contrast between the intellectual activity of the North and South thus presented.

MEASURES FOR ENCOURAGING AND MAINTAINING A NATIONAL LITERATURE OF OUR OWN.

In revising what has been said on this subject in former reports, we see much to commend, while the whole ground has been thoroughly and ably explored. Our publishing houses have been, and still are, to a great extent, unwilling to bring out medical works, unless intended as text-books, or works immediately available in practice. Hence, few but those connected with medical schools have been able to find publishers, however great their attainments in medical science or meritorious as writers. Few medical men have the means of publishing on their own account, and where they have, whatever may be the merits of their productions, they command but a limited sale, unless they are simple compends that may be advantageously introduced into the programme of ordinary medical study. The books recommended in the curriculum of study by our medical colleges are, for the most

¹ A work on military surgery, by Prof. Chisholme, of Charleston, S. C.

part, those which have been prepared by the professors themselves; and this, of course, operates as a constant discouragement to original works by those not connected with the schools. The only practical way, as it seems to your Committee, to overcome this difficulty, is, to have an association formed on the plan of the Sydenham Society of Great Britain, with as large a body of subscribing members as can be obtained, with a publishing committee, to whom all new books should be submitted, with power to select for publication such as, in their judgment, merit such distinction; the profit of such work, or an average percentage, to go to the respective authors. This would give a stimulus to medical authorship, such as has never been known in this country, and complaints would no longer be heard that none but teachers and professors in large institutions can find publishers.

To speak of such a plan more in detail: its object should be, not only to meet certain acknowledged deficiencies in the diffusion of medical literature, but to promote especially the production of original works of a high order of merit, by medical writers of our own country. It might, however, be deemed advisable not to confine the plan to native works, but to comprise the issuing of reprints and translations of standard foreign works in any of the European languages.

The association should consist of an unlimited number of members; the works to be furnished to the members at their actual cost, deducting the percentage to the authors, and supplied only to those who have paid in advance.

The society should be under the direction of a board of council of five or more members, chosen at first by the American Medical Association, and called a Provisional Council. The president, vice-president, and other officers to be elected annually. Under such a plan, nearly all the funds subscribed would be devoted to the publications; and as the proportionate cost of producing books decreases as the number of copies increase, it would be the interest of every member to procure additional subscribers.

The above plan seems entirely feasible to your Committee, and it is one which, in their judgment, would exert great influence in promoting the progress of American medical literature. No better plan certainly could be devised to supersede that depraved appetite for mere medical gossip, and the frothy inanities of extemporaneous journalism, which has been so rife in this country for many years past, and with which practitioners are too often satisfied. It would

give a spur to medical authorship such as has never been felt before; and no more complaints would be heard that so many meritorious works can find no publishers.

In former reports some ill-considered attempts have been made to cast obloquy upon those who have undertaken to edit foreign medical works, and bring them before the profession in a correct, possibly in an improved condition. As a general rule, such supervision, or editing, as it has been called, has been undertaken at the solicitation of certain large publishing houses, who deemed it desirable and expedient to have the sanction of some well-known physician or surgeon whose name should stand as sponsor for the work, and who should make such annotations and additions as would render it better adapted to the American medical reader. Without such name many, probably most of the useful foreign works that have been reprinted here, would never have seen the light in this hemisphere, or, if they had, would not have met with a remunerative sale. It was thus that, half a century ago, the name of Rush gave currency to the works of Sydenham, Hillary, &c., while in more recent times, the name of Hossack gave an immense circulation to Thomas' "Practice of Medicine," and that of Francis to the "Midwifery" of Denman. Who will gainsay a Mott for placing Velpeau within the reach of his countrymen; or Stevens, "The First Lines of Cooper's Surgery;" or Reese, the "Medical Dictionary" of Sam. Cooper; or Draper, the "Chemistry" of Kane; or Beck, the "Materia Medica" of Murray; or Mutter, the "Surgery" of Liston; or Pattison, Burn's "Surgical Anatomy of the Head and Neck;" or Doane, the "Study of Medicine" of Good; or Gurney Smith, the "Human Physiology" of Carpenter; or the work on the "Microscope" by the same author; or Griffith, the "Dispensatory" of Christison? If such supervision be a sufficient cause for rebuke or ridicule, then the late Prof. J. C. Warren, of Boston, cannot escape censure, for he edited the great work of Cooper on "Dislocations and Fractures;" nor Prof. Dunglison, who has brought out the "Cyclopedia of Practical Medicine;" nor Dr. Condie, who has supervised quite a number of foreign medical publications; nor Dr. Hays, who has his name on the title page of "Lawrence on the Eye;" nor Prof. Rogers, who has edited Lehmann's "Physiological Chemistry;" nor Prof. Leidy, who feels it to be no disgrace to "Revise, with notes and additions," the "Anatomy" of Quain and Sharpey. We say thus much in justice to some of the first names in our profession; for we believe they have rendered it a useful service by

introducing within our reach so many of the standard foreign publications and text-books, of which otherwise we should have been deprived. Whatever reputation or emolument they have gained by such labors they are fairly entitled to; but where such work has been slighted or heedlessly performed, then no one suffers for the neglect and shortcomings but themselves.

We have above referred to one special mode of encouraging medical authorship; but it presupposes, of course, that cultivation and discipline of the intellectual powers which prepare and qualify for such vocation. In looking back upon the past, we are forced to acknowledge that the elementary and classical training, so essential to success in this department, has not been so general or of so high an order as to qualify any considerable number of our profession to enter upon literary undertakings with high promise of success. But this period it is believed is rapidly passing by; and this transition stage in which we now live will, it is to be hoped, ere long terminate in a higher degree of attainment, and more special qualifications for successful authorship.

As measures calculated to develop such talent, it would be well for our State and county medical societies, as well as other local medical organizations, to offer prizes for the best essays on special subjects. The same object would also be promoted by the Faculties of our medical schools and colleges offering prizes for the best inaugural thesis, especially when founded on original research. Great advantages would also result in the establishment of medical libraries in all our large cities, accessible to all the resident members of our profession, and kept up by the early addition of all new domestic and foreign medical publications and periodicals. Medical book clubs should also be established in all our large towns capable of supporting half a dozen practitioners, for the purpose of furnishing at a cheap rate all the important medical journals, domestic and foreign.

A very obvious mode of promoting the progress of Medical Literature is by raising the standard of medical attainment by a reform in the present system of education. Considering the extended discussions of this subject in past years, the time seems to have arrived when the profession itself should insist upon an examination in the fundamental branches of learning, as preparatory to admission to our medical colleges. It is in vain that the number of professorships in our schools be increased, or the length of their terms extended; no real advancement in elevating the charac-

ter of our profession can be hoped for until the primary education of students and the requirements for graduation be more extended and thorough. No one can deny that the honor, dignity, and social position of any profession must depend mainly on the primary qualifications and education of those who engage in its pursuit. Now, there are far fewer graduates of colleges among students of medicine than among the members of our law schools and theological seminaries; and it has been ascertained that but one in five medical students has received a collegiate education, even in New England, where the proportion is vastly greater than in the Middle, Western, and Southern States. Indeed, not one literary graduate in ten ever enters on the study of medicine. In the professions the rate is reversed; those who enter them without having enjoyed the advantages of a collegiate course form an exception to the general rule. Now, it matters little how extended or thorough may be the course of medical instruction, as long as the mental faculties have not been trained to acquire or retain knowledge—as long as no tests have been employed to ascertain whether the student is intellectually incompetent or educationally unqualified.

And when the prescribed course of medical teaching has been gone through, what security have we that a diploma furnishes the necessary proof of intellectual, moral, literary, or scientific qualifications? It ostensibly shows that its possessor has studied medicine three years, and attended two full courses of medical lectures; no more. The thesis is no test, for it may have been written by another; and as long as examinations are conducted as at present, without demanding written answers to questions in presence of the examiner, there is no satisfactory means of knowing whether the candidate understands orthography, grammar, or syntax. Owing to this neglect, our profession is constantly degraded and brought into disrepute. This is the indirect cause of most of the quackery that fills the land; all the other professions recognize the truths we have stated, and act upon them; while medical men only seem regardless of them, and hesitate to apply the remedy.

This remedy consists in adopting some method which cannot be evaded, of securing a thorough preliminary examination of every student before entering on the study of medicine—an examination not limited to primary education alone, but embracing his moral and intellectual qualifications. And the standard should be

elevated enough to place him on a level with the highest and best educated men in the community.

Your Committee will not undertake to say where this power should be lodged; at present the entire responsibility evidently rests upon the schools. If it be said that the student has already been engaged a year or more in medical study before he applies for admission to the lectures, then let him be sent back, if he be found deficient in the necessary preliminary studies, and complete the foundation on which the medical superstructure is to be built. Until, then, the present system be altered, the whole responsibility rests upon the profession in our medical schools, and cannot be evaded. Let them be strictly held to this responsibility. They know far better than others how imperatively this reform is needed. Let them enter upon it without delay, regardless of what effect it may have upon the number of their matriculants, and they will be rewarded by the thanks of the profession, the gratitude of the community, the consciousness of having rendered a most essential service to their brethren, by exalting their social status, increasing their influence, and promoting the cause of science and humanity.

In behalf of the Committee,

CHARLES ALFRED LEE.

PEEKSKILL, Oct. 28, 1863.

DIA T H E S E S:

THEIR SURGICAL RELATIONS AND EFFECTS.

BY

E. ANDREWS, A. M., M. D.,
PROF. OF SURGERY IN THE MEDICAL DEPARTMENT OF LIND UNIVERSITY.

DIATHESSES.

THE term Diathesis signifies, by the best usage, any constitutional tendency or condition which modifies the course of disease.

Of these conditions there are many, and so important are some of their influences, that in a large percentage of surgical operations they hold the issues of life and death in their power. These are those mysterious influences which, when working against us, destroy the patient despite all the best operative skill, and when in our favor, will crown with fortunate issues the most bungling operations, and the most desperate injuries.

As this subject requires for its elucidation vast and laborious induction, and cannot be set forth with the attractions of pictorial and instrumental illustration, it has been a neglected topic, even in the works of our best standard authors. Yet its importance is such that a knowledge of it is scarcely less essential than that of local and regional pathology. The next great improvement needed in surgery is not so much better instruments and operations, as better answers to the two following questions, viz:—

1st. How shall a dangerous diathesis be diagnosed in advance of any perilous manifestation of its effects?

2d. It being diagnosed, how shall it be corrected with the promptness and certainty required to ward off its fatal consequences?

Diatheses are variously named according to their relations to diseased action, giving rise to such epithets as the following, viz., the aplastic, the plastic, the erysipelatous, the rheumatic, the scorbutic, the scrofulous, the syphilitic diatheses, etc., but surgically considered, the most important of these are the *aplastic*, the *normal*, and the *hyperplastic* diatheses.

A few remarks may be indulged to show the importance of these conditions. There are times when a surgical patient manifests a total loss of the power of effusing and organizing plastic lymph. Ulcers enlarge instead of diminishing; wounds fail to unite by

first intention; every little scratch or abrasion suppurates; and injuries of a deeper kind terminate in effusion of pus without the usual amount of plastic effusion around the abscess. All the products of inflammation take the aplastic form of serum or pus; there is a general tendency to liquefaction and breaking down of the tissues, and an extreme liability to erysipelas, diffusive phlebitis, pyæmia, and death.

In such a state of the system, injuries are followed by a frightful mortality, and surgical operations by a melancholy array of failures.

The tabulated statistics of American and European surgery show that about ten per cent. of the deaths after surgical operations is referable to the effects of this diathesis, as may be readily seen in the column of deaths by the significant remarks: "Died of erysipelas—of phlebitis—of pyæmia—of metastatic abscess—of hospital gangrene—of purulent deposits—of general breaking down of tissues," &c. All these complications cluster around one single condition—the *Aplastic Diathesis*.

To the surgeon, diatheses most naturally present themselves under a threefold division: into *aplastic*, *normal* and *hyperplastic* states. Of these the most important is the aplastic division.

THE APLASTIC DIATHESIS.

CAUSES.—The fact that soda and ammonia are the natural liquefiers of protein compounds in the living body, has suggested the idea that the aplastic or liquefying diathesis may be primarily due to the excess of alkalies in the system, which, acting as solvents, prevent the deposit of solid lymph. This view is favored by the fact that the most powerful and rapid cause of aplasticity known is confinement in a close, overcrowded ward of wounded men. In such circumstances the decomposition of the pus and other secretions keeps the air constantly filled with alkaline ammoniacal vapors, and the patients who inhale them are generally in the aplastic diathesis by the third day.

Another observation tending to the same conclusion is that the hyperplastic or rheumatic diathesis, which is directly the opposite of the aplastic, is accompanied with a deficiency of alkalies, and a relative excess of acids in the system.

Tending in the same direction is the fact that the best established remedies for aplasticity are those which are chemically capable of

neutralizing alkaline solutions, such as iodine, chlorine, and their compounds, and the mineral acids, etc.

From all these considerations it seems probable that the aplastic is, properly speaking, the alkaline diathesis. Not, however, to put too much stress on an undemonstrated chemical hypothesis, it will be proper to consider the plain, tangible, external influences which are proved to be causes of aplasticity.

The general causes of this diathesis, as they meet the surgeon in practice, are, first—

Filthiness and overcrowding of hospitals, barracks, or tenements.

A striking illustration of this truth came under my observation during my service in the army.

At the battle of Chickasaw Bayou, near Vicksburg, two of the hospital steamers presented a striking contrast in this very respect. One, the "City of Memphis," was extremely large, airy, and well ventilated, while the other, the "Von Phul," was comparatively small and close. The boats were stationed along the Yazoo River, in the rear of the line of battle, to receive the wounded. By the chance of war, the greatest carnage occurred in the vicinity of the smaller boat, so that the little "Von Phul," with her small, close cabins, received twice the number of patients which the huge "City of Memphis" did. The fighting continued five days, after which the whole army made a sudden movement by water to capture Arkansas Post. Owing to the rapidity of the movements, there was no time to equalize the numbers by transfer, and the two hospital steamers went off up the river as they were. Here was a fair field of comparison by which to determine the effects of overcrowding. One had 125 patients dispersed through vast and airy cabins, easily ventilated and kept clean. The other had 300 wounded men crammed into a small space, where they could not be kept clean, and where they continually breathed the ammonia and stench from decomposing pus.

My notes of the cases show the following results on the two boats. By the fifth day the wounds of those upon the large boat began to clean off. The whitish shreds of disorganized tissue, which are always seen in recent gunshot wounds, separated and passed away, leaving a healthy surface covered with rosy granulations. At the same time, all the wounds upon the small boat presented a dull, whitish-yellow aspect, no surface of healthy granulations being anywhere visible. Erysipelas had commenced its ravages, accompanied by phlebitis and pyæmia. Injured arteries

seemed to have no plasticity to produce adhesion when tied, and hence secondary hemorrhage became alarmingly frequent. Mortification occurred in some cases with appearances approximating to hospital gangrene. The general vital power of the patients was lowered, and they succumbed in many cases from small and unimportant wounds.

On the seventh day I was ordered to take charge of the smaller boat. I immediately ordered all the doors and windows to be thrown wide open, and a large portion of the wounded to be carried out and laid in the fresh air of the decks. At the same time the most vigorous efforts were made by Assistant Surgeon Witt, of the Sixty-ninth Indiana, to rectify the condition of the entire boat; by which means we very much alleviated the evils which had been produced. Nevertheless, great mischief had been already done, and by the tenth day the balance sheets of death stood as follows:—

Mortality on the well-ventilated boat	5 per cent.
Mortality on the overcrowded boat	12½ do.

This example does not stand alone. I have observed something analogous to it after every battle that has come under my observation. Wounded men who are kept dispersed in the fresh air of the fields, even though they have been exposed to cold and wet, generally preserve their plasticity, present clean rosy wounds, and recover with vigor and ease; while those who have breathed a confined atmosphere, filled with the effluviæ of decomposing secretions, always show foul, offensive, dull-colored wounds. So striking is the difference in their appearance, that, were a thousand men of each class taken on the sixth day and mingled indiscriminately together, they could be readily selected out again by the appearance of the wounds alone.

I consider it therefore an established and invariable law of nature, that a full exposure to the atmosphere of an overcrowded and ill-ventilated ward of wounded men will, in five days, produce an aplastic diathesis in every man thus maltreated.

The same principle holds true in civil practice, not only in hospitals, but also in ships and tenements. The aplasticity of emigrants laboring under ship fever is still fresh in all memories, and the air of the crowded tenements, in certain quarters of all large cities, continually furnishes us specimens of aplasticity induced by inhalation of putrid animal effluviæ.

Aside from the above causes, there are epidemic influences (perhaps atmospheric) which are ill understood, but which nevertheless

operate to bring whole communities under this diathesis at once, giving an aplastic type simultaneously to all prevailing diseases. The exact nature of these causes is not yet understood. We will now pass to the consideration of the effects of the aplastic diathesis.

EFFECTS.—The aplastic diathesis may exist in a patient without the presence of any positive disease; but, in such circumstances, the system is in a state of unstable equilibrium, and extremely liable to run on to fatal disorganization under any disorder by which it may be attacked. To employ a common remark, "it makes very little resistance to the disease." Speaking more accurately, the effect of the aplastic diathesis is to prevent the deposit of organizable plastic lymph, and to give predominance to the effusion of pus, serum, blood, or other *liquid* products of inflammatory action. Hence it produces an unfavorable effect upon all injuries and inflammatory diseases. In incised wounds it prevents union by the first intention, causes the edges to ulcerate, and the sutures to give way. In ulceration it causes a whitish, unhealthy surface, impairs granulation, and gives a phagedenic, hemorrhagic, or gangrenous character to the sore. In ligated arteries it prevents the adhesion of the coats, and the formation of the solid plug; at the same time it hastens the ulceration under the ligature, and by these means produces secondary hemorrhage. In scratches, pimples, and abrasions of the skin, this diathesis furnishes valuable diagnostic signs by which its presence may be ascertained in the patient. It causes all these trivial injuries to suppurate with unnatural facility, forming weak, unhealthy festers, which are not surrounded by firm lymph, but either have a pale flaccid border, or an areola of diffusive erysipelatous inflammation. To idiopathic eruptions the aplastic diathesis communicates the same peculiarities, inclining them to a feeble pustular character, and preventing any firm, well-defined border to the vesicles. In variola, for instance, it destroys the clean cut circular and solid outline, which in a plastic constitution surrounds each pustule, and instead of it causes a weak spreading vesicle, which coalesces with its neighbors and results in the confluent form. In many of the same cases it destroys the walls of the capillary vessels and induces hemorrhagic complications. It prevents the barrier of plastic lymph forming around diseased parts, so that abscesses are loosely diffused, and inflammations spread unobstructed over wide areas. For this reason the veins of

the affected part not only partake of the inflammation, but readily suppurate on the interior surface, casting off their pus into the current of the blood, and producing pyæmia. In fine, the aplastic diathesis produces all those dangerous phenomena which are commonly included under the expressive phrase "liquefaction and breaking down of tissues."

COMPLICATIONS OF SPECIFIC ANIMAL POISONS.—The unstable chemical condition of the tissues and fluids in the aplastic state, favors certain decompositions which, if they occur, give origin to a malignant and irritant poison, commonly called the poison of erysipelas. The practitioner who once obtains a clear view of the relations of this poison to the aplastic diathesis, will thenceforth feel that he has a new power, and will exercise complete control over diseases which before were his constant dread. Every practical surgeon will comprehend the importance of the statement when I say that he who understands this well need have no further fear of death from traumatic erysipelas, phlebitis, or pyæmia in any patient over whom he has reasonable control.

There are several surgeons in active practice who have already ceased to count these diseases among the risks of their operations.

The erysipelatous poison is a depressing irritant which gives a typhoid and malignant character to every disease with which it may be associated, but the local effects are very different in differing diatheses. If the constitution be aplastic, the following effects follow its inoculation. The flesh is first inflamed by the irritation of the virus. As the aplasticity of the system prevents the formation of solid lymph, the diseased tissue begins immediately to effuse serum or pus into its areolæ, causing a puffy diffusive swelling which has no hard border. The fluids thus secreted in the affected part contain the same malignant virus, and as they are limited by no barrier of plastic lymph, they spread to a great distance through the meshes of the areolar tissue, carrying a malignant irritation to every part, and reproducing the poisonous effusion wherever they reach. The skin over the inflamed parts assumes a peculiar diffused red color, whose tint closely resembles that of scarlatina. The lymphatic vessels leading from it absorb the irritant fluids and become inflamed along their track to the nearest glands, and may be traced by a stripe of the same peculiar color. This virulent species of inflammation may reach the veins and produce malignant phlebitis in two ways: 1st. By direct implication of the veins within the

affected tissues, whence it will spread diffusively on their internal walls; and 2d, by the current of poisoned lymph taken up by the absorbents of the parts and carried into the great venous trunks at the base of the neck. In either case the walls of the bloodvessels take up the same erysipelatous action as other affected membrane, and as they necessarily cast their poisonous effusions into the current of the blood, the whole system at once feels the depression, and manifests the signs of malignant blood-poisoning and pyæmia.

If the poison be very concentrated, or the constitution unusually aplastic, as in overcrowded hospitals, the affected tissue frequently succumbs at once to a peculiar mortification called *hospital gangrene*. The aplasticity in these cases is manifested in the half dissolved, pulpy, or gelatinous form of the sloughs. The poison of hospital gangrene is undoubtedly identical with that of erysipelas, as the two diseases spread simultaneously under the same circumstances and in the same patients, and the contagion of one will reproduce the other.

The erysipelatous virus may complicate, by its presence, many other diseases, giving rise to what are known as the malignant, in distinction from the ordinary sporadic forms of the same affections. Thus it has long been known that the bodies of those who die of the malignant variety of puerperal peritonitis will by inoculation produce erysipelas and often death in the incautious dissector, if he wounds his hand at the post-mortem examination of such cadavers.

The true pathology of these cases has been well and succinctly stated as erysipelatous metritis, phlebitis, and peritonitis. Hence the contagious character of the complaint.

Scarlatina maligna is another case in point. Attention was called above to the fact that the peculiar color of erysipelatous inflammation closely resembles that of scarlatina, and some have gone so far as to state that the two poisons might be identical. There are sufficient proofs, however, of their separate character; but they closely resemble each other, and are frequently found in the same case. These constitute the well-known malignant forms of scarlet fever, of which the patient succumbs with the symptoms of blood-poisoning and pyæmia, and by contagion communicates erysipelas to the attendants who take care of him.

Prof. Pitcher, of Detroit, has published extensive observations, calculated to show that the erysipelatous poison is the malignant element in Asiatic cholera and epidemic dysentery, these diseases

being both found capable of producing erysipelas by contagion. Improbable as this opinion might seem at first glance, it is supported by a strong array of facts, and also from analogy. It is well proved from numerous clinical observations that the mucous membranes are liable to erysipelatous inflammations, hence there is, on second thought, the highest probability that irritations of the intestinal canal of the malignant type may be erysipelatous in their pathology. In numerous instances the recession of external erysipelas has been followed by immediate cholera, as if by metastasis, and *vice versa*, the appearance of erysipelas externally has been followed by the immediate cure of cholera. When cholera is prevalent, erysipelas is apt to be frequent in the same wards of the hospital.

Prof. Pitcher, whose writings are referred to above, first developed the idea that there is a common virus prevalent in almost all malignant epidemics, and that it is identical with the virus of erysipelas. This proposition, which at first glance seems fanciful, proves on further examination to be very nearly the exact truth.

The discovery of the common nature of many diseases whose superficial symptoms are widely different is one of the most important advances ever made in medicine. The doctrine of Professor Pitcher, however, needs an additional clause to express the whole truth: *There are two morbid elements present in every malignant epidemic. One is the erysipelatous virus, and the other is the aplastic diathesis.* If either of these elements is wanting, the epidemic may still have a mild existence, but it is not destructive in its effects. If the virus is absent, the cases do not have the element of malignancy. If the aplastic diathesis is wanting, the virus seldom forms, and when it does, it is limited in its action, and speedily expelled from the system. The general plasticity and tone of the system in such case prevent the possibility of adynamic malignant diseases.

The virus of smallpox and syphilis may also complicate the aplastic diathesis. In these cases they show their most destructive effects. The smallpox assumes the confluent form, and frequently ends in death. Syphilis, in similar constitutions, is prone to effect a complete ruin of the constitution. To make the matter worse, either of these diseases is liable to be complicated by the presence of the erysipelatous virus, when they at once assume their most malignant type.

The effects of the specific animal poisons in the plastic diathesis are widely different from the above description. The poison of

erysipelas is seldom developed spontaneously in plastic constitutions; nevertheless, it is often received by contagion or by accidental inoculation. In these cases the virus acts simply as a violent irritant. A local inflammation is immediately set up which is inclosed by a barrier of solid plastic lymph. Within this, supuration takes place, and a furuncle or carbuncle results. The abscess points and bursts, thus expelling the poison effectually from the system. This difference was finely illustrated in a case which was brought to my knowledge. Two medical gentlemen held a *post-mortem* examination upon a patient who had died of erysipelas, and both incautiously inoculated themselves by wounding their hands in the dissection. In one of them, owing to his plastic diathesis, the poison was limited by a solid effusion of plastic lymph, and a carbuncle was the result. In the other, who was in the aplastic state, no barrier of lymph was thrown out, the effusions were liquid, and erysipelas therefore ensued, which progressed without restraint, and caused his death.

Another case afforded a fine illustration of the presence of the virus of erysipelas as the malignant element in another disease. Mr. B., during an epidemic of scarlatina, took the disease in a malignant form, with the usual putrid sore throat complications. He lived some two weeks, and then died of general exhaustion and blood-poisoning. Another member of the family took from him scarlatina simplex, and recovered. A friend, Mr. C——, who was very constant in his attentions on the deceased, had a small, abraded pimple upon the cheek. Having had scarlatina, he was not liable to that disease, but he took erysipelas, which commenced at the abraded point, and spread over half the face. The physician in the case, who was also insusceptible to scarlatina, and of a plastic diathesis, seemed to absorb the virus through the mucous membrane of the mouth, where it was received by inhalation. The glands of his neck inflamed, and he was laid up with a series of cervical abscesses. Two of the servants who handled the sick man became affected with felons, a very common scourge of the nurses in cases of scarlatina. Here, then, were scarlatina, erysipelas, abscesses of the neck, and felons, all taken by contagion from one patient. In both instances we see illustrated the following conclusions:—

1. The active malignant element is the erysipelalous virus.
2. The aplastic diathesis gives this virus an opportunity to exert its full destructive influence.

3. The plastic diathesis builds barriers around the poison, and casts it out of the system.

THE APLASTIC DIATHESIS CAN BE DIAGNOSED IN ADVANCE OF ANY DANGEROUS MANIFESTATIONS.—If, as I have endeavored to show, aplastic patients alone are liable to erysipelas, hospital gangrene, diffusive phlebitis, and pyæmia, then it is a desideratum of the utmost magnitude for the surgeon to be able to diagnose this condition in advance of any actually dangerous manifestations.

If he finds the patient in a strongly plastic state, and can keep him so, he may venture any reasonable operation, either upon the veins or other organs, with a firm sense of security; but if he discovers marks of the aplastic diathesis, he will first of all proceed to correct it, and, if possible, will postpone all surgical operations until that correction is fully accomplished.

Such a diagnosis can in almost all cases be made by carefully proceeding upon the following principle, viz: *Seek for evidences of plasticity or aplasticity among any trivial injuries or diseases with which the patient may be affected.* The most valuable symptoms are found by a close inspection of the skin, because there are almost always upon it some pimples, scratches, abrasions, or other affections, which show the diathesis in their effects exactly in the same way as more extensive injuries. If the diathesis is aplastic, every little scratch or abrasion will be found unusually prone to suppurate, sometimes forming a line of little festers along a mere scratch, within twenty-four hours after its reception. If, on the contrary, the diathesis is very plastic, these little injured points usually dry up without suppuration, and heal with the formation of a slight scab, or, if pus forms at all, it appears slowly, and only at the most deeply injured points. The character of the inflammation around such places is an important symptom. In the aplastic diathesis there is a deficiency of solid swelling at inflamed points. The tumefaction either does not exist, or is puffy and soft, and disposed to ulcerate, taking the erysipelatous form. On the other hand, in the plastic state, inflammation produces hard, firm swellings, giving a solid sensation to the finger, and yielding late and slow to resolution or suppuration. The color of the inflammation is characteristic. In aplastic constitutions it assumes a scarlet color, resembling somewhat the tint of scarlatina, a fact which is not noted in text-books, but is nevertheless of the utmost importance in semeiology. In plastic systems the inflammation assumes a more purple color, the

red being slightly dashed with blue. Idiopathic eruptions on the skin are equally instructive, and show precisely the same characters as scratches. If they readily assume a weak form, the pustules being flattened, ill-defined at the edges, and destitute of any firm, elevated border; if the surrounding skin is pale, or scarlet with an erysipelatous areola, the diathesis is aplastic. If, however, the pustules are clearly circular, well elevated, the border surrounded with a solid circle of plastic swelling, and the redness crimson inclining a little to purple, the diathesis is plastic. The case is still clearer if many of the points merely produce red, hard pimples, without suppurating at all. In important cases, if no marks were found upon the skin to characterize it, it would be justifiable to make a few punctures and scratches, and wait to see their type before proceeding to a decisive operation. If greater injuries happen to be present, they may be judged of by the same signs, exhibited on a larger scale. There are some diseases which of themselves prove the diathesis. Thus, the presence of erysipelas, of asthenic diphtheria, or of the malignant epidemic type of almost any disease, will be found to accompany the aplastic diathesis. Again, rheumatism, asthma, gout, squamous eruptions on the skin, hard cancer in the early stages, and all sporadic phlegmasiæ which result in solid, firm swellings, will unmistakably point out a plastic diathesis. Acid eructations from the stomach are almost always proof of the same condition.

A careful and thorough examination of a patient's person, and full inquiry into the nature of his habitual ailments, will in almost all cases bring out a sufficient number of these various symptoms to determine what his diathesis is. The following tabulation may be useful for reference:—

SIGNS OF THE APLASTIC DIATHESIS.	SIGNS OF THE PLASTIC DIATHESIS.
Slight injuries suppurate easily.	Slight injuries suppurate with difficulty or dry up entirely.
Inflammation around them is soft, and inclined to scarlet tint.	Inflammation around them is hard and inclined to a purple crimson.
Phagedenic ulceration.	Scaly eruptions.
Erysipelas.	Rheumatism, gout, asthma.
Malignant epidemic diseases.	Early stage of hard cancer.
	Sour eructations.

TREATMENT.—It is fortunate that, although this diathesis may be induced with great rapidity by contaminating effluviæ, and is

fearfully destructive in its effects; yet its removal may be effected with equal promptness and certainty.

The treatment which will accomplish this important change may be divided into *regimen* and *medication*.

1st. *Regimen*.—The first requisite for a surgical patient is fresh air. In the army I observed that wounded men might lie in the rain and snow, and be deprived of all suitable food, and badly supplied with drink, and still maintain a firm plasticity and strong reparative powers; but those who were shut up in the close overcrowded hospitals, however well warmed and fed, always became aplastic. Hence the scattered wounded who remained with their regiments generally did better than those who were sent away to large cities. The mode of ventilation must vary according to circumstances; but the perfect standard to be aimed at is this, that as far as possible, every breath the patient draws shall be of pure, fresh air, uncontaminated by previous respiration, or by proximity to suppurating wounds. The change of air should be so often and so complete, that a stranger entering the ward from out of doors shall be able to perceive not the slightest odor or *staleness*. In war it is not usually possible to find buildings suitably ventilated for hospital purposes; hence it is better, so far as military exigencies permit, to keep the wounded dispersed among their respective regiments, where they will not be overcrowded.

The large hotels, deep blocks of stores, and other lofty and wide buildings so often selected by army surgeons for hospital purposes, are extremely unsuitable, because their great breadth renders perfect ventilation of the interior rooms impossible. In addition to this, the height is an evil, as the foul air from the lower wards ascends the stairways and passages, and is respired over again on every floor, till it emerges at the attic. When such hospitals are filled with patients, a very few days suffice to induce the aplastic diathesis in every one of the inmates. If in any case such buildings are forced upon the surgeon, he should cause several large openings about ten feet square to be made through the walls on each story and on every side of the building. The partitions should be opened also in corresponding places, so that the wind may be made to blow freely through the entire structure. This may seem extravagant to those accustomed exclusively to private practice; but nothing less than this will secure fresh air in the centre of such huge pest houses as some of the military hospital buildings now in use.

Diet exercises a considerable control over the diathesis. The free use of meat increases the acids of the system, and tends to correct the aplastic diathesis. It is therefore an eligible kind of food where that condition is to be feared. An exclusive use of vegetables increases the alkalies, and favors aplasticity. Such a diet, therefore, should never be ordered in aplastic cases. The free use of acid fruits is not, as one might suppose, favorable. The acid fruits always contain a considerable amount of potash. The acids themselves, being organic compounds, are digested in the stomach and destroyed, so that they add nothing to the acids of the system; on the contrary, the potash remains, and is absorbed into the blood, actually increasing its alkaline reaction.

2d. *Medication*.—We are fortunately possessed of remedies for this diathesis, which act with surprising power and promptness.

It is a fact strongly confirming the alkaline theory of aplasticity, that the remedies best known for that diathesis are such as chemically neutralize alkalies, wherever they meet them, either in the body or out of it. There are, however, two indications to be answered in most of the cases that meet the surgeon in practice, owing to the frequent presence of the erysipelatous virus with the diathesis: viz., 1st, to counteract the aplasticity; and 2d, to destroy the poison. Although this distinction between aplasticity as a predisposing, and the virus as an exciting cause of disease has seldom been clearly comprehended, yet it is a remarkable fact that the experience of the profession has guided it to the selection of a class of remedies for these diseases which combine the two powers of neutralizing alkalies and destroying all kinds of animal poisons.

The remedies best known and established for these purposes are the following:—

Perechloride of iron (usually given as the muriated tincture).

Bromine.

Iodine.

Nitrate of silver.

Mineral acids.

Sulphites of lime and soda.

In malarious districts quinine also is used with remarkable success.

We will briefly consider these remedies in the above order.

Perechloride of iron, usually given in the muriated tincture of iron, consists of a large volume (two and a half equivalents) of chlorine held in a feeble combination with iron. Whenever it meets with alkaline fluids or compounds, it is instantly decomposed, yielding

up its chlorine in the nascent active state to form chlorides with the base of the alkali. The chlorine thus brought into activity also exerts its well-known disinfectant power, which it possesses in common with iodine and bromine, and effectually destroys whatever zymotic poisons may be present. The alkalies of the human body are principally potash, soda, and a class of compounds of which ammonia is the type. Perchloride of iron, in meeting these, would naturally resolve them into chlorides of sodium and potassium and muriate of ammonia, while the iron would remain a useful tonic in the blood. The fluids of the body, being thus deprived of their alkaline excess, no longer prevent the formation of solid lymph, and the normal plasticity is re-established. Whether this chemical theory is true or not, it is a clinical fact that the free administration of perchloride of iron will in twenty-four or forty-eight hours produce a marked change in the human body, causing aplastic effusions to diminish, suppurating surfaces to dry up, and solid plastic lymph to make its appearance at inflamed points. On account of its very prompt and certain action, it has become a great favorite, both in this country and in Europe, for the treatment of erysipelas and other putrid diseases, such as the malignant aplastic form of diphtheria.

The doses of this remedy are frequently made too small to be efficient. Fifteen drops three times a day will never answer where a malignant erysipelas is spreading two inches every hour. Twenty-five to forty drops of the tincture of iron should be given every hour or two until a full and decisive effect is obtained. To make this well borne on the stomach, it is only necessary to have it well diluted; this being done, a drachm dose will be tolerated as readily as twenty drops. When thus given, the effects are surprising. In from twenty-four to thirty-six hours erysipelas ceases to extend, and the serous swelling begins to diminish. The excessive tendency of scratches and pimples to suppurate ceases. Such injuries dry up and form thin scabs, inflamed parts begin to present hard swellings, and all the signs of systemic plasticity return.

From the efficiency of this remedy in erysipelas, I some years ago conceived the idea of using it as a prophylactic in surgical cases. With this view I commenced to prescribe it invariably after every surgical operation, unless there was some decisive reason to contraindicate it. This practice I have continued to the present time, with the most gratifying results. I have in this

time attended a vast number of wounded and operative cases, applying the prophylactic treatment to nearly all of them. The result is, that since the adoption of this precaution I have not lost a single patient, thus treated, by erysipelas, hospital gangrene, phlebitis, or pyæmia. In fact, I have ceased to count these diseases among the risks of surgical operations, in all cases where good ventilation and prophylactic medication can be secured. My experience is not alone in this matter. Surgeon M. K. Taylor, U. S. Army, and Chief of the Military Hospitals located at Keokuk, Iowa, at my suggestion has adopted the same plan. He administers to every wounded or operative case muriated tincture of iron as a prophylactic, in doses of forty drops every three hours. His testimony is that, under this management, erysipelas and pyæmia have absolutely ceased to be a source of danger among the wounded. He reports only one death from these complications, and that was a case already far advanced before it reached the hospital.

Bromine has, within the past year, been shown to have decided power over the same class of diseases as perchloride of iron. The military surgeons in the hospitals at Louisville, Ky., have used it extensively, and report gratifying results. It seems there to be used chiefly as a local remedy, and especially in cases of hospital gangrene. The local application is as follows: The pulpy slough having been removed from the gangrenous spot, pure bromine is applied thoroughly to the surface, as a caustic. This application entirely corrects the fetid smell, and when the eschar separates healthy granulations are found beneath it. The limb is then dressed in the following manner: A thin, porous layer of cotton is placed next the limb. Over this is laid a cloth wet with a solution of bromine in alcohol, and the whole is wrapped in rubber cloth to confine the vapor of the bromine, and keep it in contact with the skin. As it is very volatile, this secures an efficient vapor bath for the part. At the same time a solution of bromine and alcohol (twenty drops to the ounce) is kept evaporating in each ward to destroy any poison floating in the air. Bromine is a powerful agent, rapidly destroying all septic animal poisons, and I have no doubt that this treatment is efficient and reliable.

Iodine is an old standard remedy for erysipelas, and one of considerable power. Like bromine and chlorine, it promptly destroys septic poisons, and neutralizes the alkalies. Owing to its irritant effect, it cannot be given largely by the stomach, and its usefulness is therefore mainly limited to local applications. The best mode

of administration is to mix equal parts of glycerine and tincture of iodine, and keep the erysipeloid region constantly bathed in it.

Nitrate of Silver.—This article is still more irritating than iodine. It has a decided potency wherever applied, but is too harsh for general use. It is chiefly employed to make a line of limitation around the affected part by which to check the further spread of erysipelas.

Mineral acids are useful both internally and locally. The fuming nitric acid is a very efficient caustic in hospital gangrene, and the diluted forms given internally, though not equal to perchloride of iron, are very useful in restoring the plasticity of the blood.

Sulphurous Acid and Sulphites of Lime and Soda.—M. Polli, of Milan, Italy, has made a large series of experiments upon dogs to show that these articles are extremely powerful in the prevention and cure of pyæmia, and other zymotic forms of blood-poisoning. He does not seem to have applied the remedies to the human subject. Dr. Fisher, of Chicago, determined to test the matter by using the articles for erysipelas. He has accordingly given them in a considerable number of cases of erysipelas, and thus far with prompt and decisive results. The well-known power of these articles in arresting zymotic action of various kinds gives probability to his conclusions. The sulphites are given in drachm doses every three hours. The sulphite of soda is preferred when the bowels are constipated, and the sulphite of lime when they are loose.

Many of the soluble metallic sulphates, nitrates, and chlorides have similar properties, but they are all too irritating to be given largely by the stomach.

If the above plans of treatment are based on correct principles, we easily see the necessity of avoiding certain very common errors; for instance, the administration of vegetable acids instead of the mineral. Vegetable acids are digested and decomposed in the stomach, and are converted into nutriment without reaching the blood at all in the acid form. At the same time the juices of the acid fruits contain considerable quantities of potash, which, being indestructible, remains in the alkaline form after the acid is digested, and adds to the excess of alkalis already present.

For similar reasons, the use of ammonia as a stimulant in the exhausted stages is by all means to be condemned, notwithstanding that it is so often advised by writers of text-books. It is to be remembered that in these diseases the animal fluids are already

supersaturated with ammonia. The patient has usually been exposed to foul air, which is filled with it, breathing it perhaps for weeks. By chemical tests it may be found in excess in his breath and in his blood. In fact it is the presence of this more than any other thing which causes the solution of tissues and general aplasticity of the blood. The giving of more ammonia in such cases may produce a little evanescent stimulation when it comes in contact with the mucous membrane of the stomach, but as soon as it is absorbed into the circulation it adds to the ruinous excess already present.

The summing up, therefore, of the preventive and remedial measures proved to be suitable for this class of diseases is as follows:—

1. Absolutely pure air and perfect cleanliness.
2. Meat diet.
3. Perchloride of iron internally.
4. Sulphites internally.
5. Bromine locally.
6. Iodine locally.
7. Mineral acids internally and externally.
8. Quinine in malarious cases.

THE NORMAL DIATHESIS.

In a state of perfect health the diathesis is neither aplastic nor hyperplastic, but a just and salutary mean between the two. In this state inflammations produce at first plastic deposits, which subsequently subside by resolution, or suppurate in a healthy manner, according to the severity of the case. The balance is delicately adjusted between plastic and aplastic effusions so as to result most favorably for the welfare of the patient.

THE HYPERPLASTIC DIATHESIS.

As in the previous pages we have considered a state in which there was a general tendency of the tissues to break down and resolve themselves into alkaline fluids, so now we have to contemplate a condition in which all the products of inflammation are prone to the solid form, and in which suppuration takes place with extreme slowness and difficulty.

The typical disease of the hyperplastic diathesis is rheumatism,

as erysipelas is of the aplastic state. Erysipelas and rheumatism, therefore, stand opposed to each other, and cannot exist simultaneously in the same patient. The only apparent exceptions which I know of to this rule are those where a patient with one of these diseases is subjected to influences calculated rapidly to reverse his diathesis. In such circumstances rheumatism may follow erysipelas before the effects of the latter have had time to subside, and erysipelas may follow rheumatism in the same way. These sequences are rare, and are not true complications of the two diseases together.

The causes of the hyperplastic diathesis are identical with those of the rheumatic cachexy. They probably all act by producing or retaining an excess of acids in the system, which is shown by the excessively acid secretions of the skin, stomach, and kidneys, and by the extreme difficulty of producing any of the alkaline inflammatory effusions. Whatever checks the excretion of acids, as, for instance, cold to the surface, or inaction of the kidneys, tends to excite rheumatism. As able discussions are already before the profession upon this topic, it is not necessary that I dwell upon it.

The hyperplastic diathesis is to be diagnosed by considering the following questions: Has the patient now or habitually any symptoms of undoubted rheumatic character? Is the stomach habitually acid? Do slight injuries or abrasions of the skin dry up with an unusual promptness, and with unusual freedom from suppuration? Do eruptions on the skin seem unable to mature pustules? Do such eruptions tend to the squamous form? etc. etc.

The surgical relations of the hyperplastic diathesis are these: All cutting operations may be undertaken in such patients with excellent success. Incisions easily unite by first intention, and ulcers cicatrize rapidly. Operations upon the veins may be undertaken without fear of pyæmia, and, in general, unless bad ventilation or other mismanagement change the diathesis before recovery, there will be perfect safety from all aplastic complications. Periostitis and arthritis in this diathesis scarcely ever produce necrosis or caries, however severe the inflammation may be. On the other hand, sprains and dislocations produce very unfavorable results. The inflammation set up by the accident partakes of the rheumatic type, and has a true rheumatic persistence and obstinacy. The ligaments are thickened by plastic effusion, and fibrous ankylosis may occur from a similar deposit within the joint, and many months often elapse before recovery takes place from slight sprains.

The treatment of the hyperplastic diathesis is substantially the same as for rheumatism. Meat and spices should be rigidly excluded from the diet, and alcoholic stimuli be entirely avoided. Baths of warm soap and water may be taken, the dress should be thoroughly warm and dry, and the muscular exercise be moderate. Medication should be varied to suit the case, but, in principle, it should be the same as for rheumatism.

The limits of this paper do not permit of a discussion of all known diatheses, such as the strumous, the scorbutic, the cancerous, the syphilitic, etc. It is, however, around the aplastic and the hyperplastic states that the chief interest centres. The surgeon who cannot diagnose and control these two conditions is ignorant of a most important part of our resources. He stumbles like a blind man among the avenues of life and death, not recognizing the direction in which his patient drifts, nor the means of safely guiding his course. On the contrary, he that clearly comprehends the subject is, in many circumstances, complete "master of the situation." He makes his calculations with entire confidence that phlebitis and pyæmia will not step in to ruin his most careful plans, and, in many cases, he can snatch from death victims who would assuredly be lost under less intelligent management.

Respectfully submitted,

E. ANDREWS.

THE
AMERICAN METHOD OF TREATING JOINT DISEASES
AND DEFORMITIES.

BY
HENRY G. DAVIS, M. D.,
NEW YORK.

This then is the mode of cure, and it neither requires cutting, burning, or any other complex means.—HIPPOCRATES, *Sydenham Society's Translation*, vol. i. p. 632.

THE AMERICAN METHOD OF TREATING JOINT DISEASES AND DEFORMITIES.

THE proper means of applying "CONTINUED ELASTIC EXTENSION" constitutes a most important—and, in many cases, the only needful—remedial measure for the treatment of joint diseases and deformities.

Development of the Treatment.—On the 27th of July, 1837, I began the treatment of my first case of disease of the spine. During its course, the conviction pressed itself upon me that contact, friction, or pressure of the diseased articulating surfaces plays an important rôle in the progressive destruction. Being naturally of a mechanical turn of mind, I set to work to devise such mechanical support for the diseased structures as would separate them from, or at least obviate pressure upon each other. The success that soon attended my efforts encouraged me. I found that I must overcome the contraction of the muscles of the trunk, and that this could best be done by a certain amount of counteracting extension, unremittingly exerted, as by means of some elastic material or its equivalent. To the force thus evolved I gave the descriptive name, "*continued elastic extension*," to distinguish it from the radically different uncontinued, inelastic power that is ordinarily called "extension" in surgery. As my opportunities for observation increased, I adapted apparatus, involving the same principles, to deformities and acute as well as chronic diseases *not* spinal. I first applied continued elastic extension to club-feet, then to bow-legs and wryneck; and in the course of some years extended the treatment thus methodized to old and otherwise irreducible dislocations, fractures, wounds, and injuries about joints; and finally, about the year 1848 or '9, to disease of the hip joint, until I gradually established to my own satisfaction the truth of the proposition that forms the opening paragraph of this paper.

Historical Sketch.—On looking back upon my personal history, I can truthfully state that I discovered the principle of treatment in question, and invented and applied the apparatus for carrying it out, without the knowledge of anything similar having been done by any other. The method, which I am happy and proud to think has within the past *few years* already worked a most beneficial change in the management of joint diseases and deformities, both in this country and abroad, did not flash upon me intuitively, but was the result of frequent and anxious reflection, and was reached only after much experimentation. Yet on searching the history of the subject, I find that I have had some predecessors, who have pioneered in the right direction. Says a reviewer: "Reforms of any magnitude are in no art so sudden as they at first appear; they are preceded by some foreshadowings, some travailing of advanced genius, some birth of a new truth into a world not ready to receive it; thus, it is certain that the expansive power of steam had been examined into, and the general plan of its application sketched long before the steam engine was applied to practical purposes. A sort of electrical telegraph was described long before Wheatstone made it. There is nothing new under the sun."¹

Hippocrates and others.—The Father of Medicine made "extension," in cases of spinal curvature, from the chest and shoulders, and counter-extension from the loins and thighs by means of bands fastened around levers at the head and foot of a wooden couch, on which the patient ("and truly in those times a sick person fully deserved that name") was lying prone. But pressure was also made by "the physician, or some person who is strong and not uninstructed," upon the hump with the hand, or by standing or sitting upon it and pressing it down with the whole weight of the person, or the poor patient was fastened to a ladder projecting beyond his head and feet, and pitched down from a high tower or the gable of a house, usually head foremost. Hippocrates also describes club-foot "to be adjusted by extension bands, properly secured by bandages and properly disposed of afterwards." It is of this treatment that he says: "This then is the mode of cure, and it neither requires cutting, burning, nor any other complex means, for such cases yield sooner to treatment than one would believe. However,

¹ British and Foreign Medico-Chir. Review, October, 1861, Review VII., from which also many of the following references are taken.

they are to be fairly mastered only by time, and not until the body has grown up in the natural shape."¹

Ambrose Paré recommends mainly support and pressure; *i. e.*, an iron corset, consisting of a carapace and plastron, in which the body of a crooked-spined person is to be laced; and for "helping those that are vari and valgi, that is, crooked-legged or crooked-footed, inwards or outwards," collars and bolsters on that side whereunto the bones do lean and incline themselves, &c.²

Fabricius Hildanus seems to have been the first who devised splints for straightening the elbow and knee fixed in a bent position. He hinged two splints together lengthwise, and a screw lying across the angle at which they were joined served to open or to close it. For the knee, he has also a machine, formed of a single straight piece of thin iron, hollowed so as to fit the back of the limb; a screw passed through this near its middle, and was connected with a ring that encircled the knee and fixed a pad or shield lying over the patella. By turning this screw, the ring and of course the joint also could be drawn backwards. The same author has also recorded a case of contraction of the fingers after burns, and a method of cure "by means of finger-stalls, between which and a bandage above the wrist, threads are tightly strained."³

Glisson describes a mode of suspending children, so that their own weight produces extension. "The artificial suspension of the body is performed by the help of an instrument, cunningly made with swathing bands, first crossing the breast and coming under the armpits, then about the head and under the chin, and receiving the hands by two handles, so that it is a pleasure to see the child hanging pendulous in the air, and moved to and fro by the spectators. Some, that the parts may the more be stretched, hang leaden shoes upon the feet, and fasten weights to the body, that the parts may the more easily be extended to an equal length." Moreover, "to straighten the trunk of the body, or to keep it straight, they use to make breastplates of whalebone, put into two woollen cloths, and sewed together, which they so fit to the bodies of the children that they may keep the backbone upright, repress the

¹ Sydenham Society, vol. i. p. 632.

² The Works of that famous Chirurgeon, Ambrose Paré, first published during the years 1545-1575. Translated out of Latine, and compared with the French, by Thomas Johnson. London, 1649.

³ Observationum et curationum medico-chirurgicam centuria. 1641.

sticking out of the bones, and defend the crookedness of them from a further compression."¹

Heister employed a machine resembling a cross, made of thin steel, to each of whose four extremities a leather band was fixed; the upper and lower for the neck and pelvis, the two lateral ones for the shoulders. The necessary extension was kept up by weights.²

Audry recommends inunctions, gymnastic exercises, bandages, and splints, saying, "The same means must be taken to straighten them (crooked legs, &c.) as are adopted for straightening the crooked stem of a young tree."³

Le Vacher's machine for the spine consisted of a corsage strongly set with whalebone, carrying a metal socket with a staff. This staff, being crooked, overhangs the head, supports a portion that grasps the forehead and occiput, and can be more or less gradually lengthened or shortened in its socket by means of a ratchet and lever, thus supporting all that part of the spine between the socket and head, but, be it observed, by means of the thorax.⁴

Schmidt invented an instrument, described as "a metal band passing round the crista ilii, supporting two branches, which run up to below the armpit and terminate like crutch handles, being kept in place by another band of metal that runs round the back of the shoulders."⁵

Darwin devised two spinal machines, the one for a sitting, the other for a recumbent person. The first consists of an arm-chair, with a square upright back, to each arm of which is fastened a crutch-handled support, which goes under the axilla of the patient, whilst to the back is affixed a crooked iron staff, from which hangs a well-contrived apparatus for grasping the head and partly supporting the weight by the neck. The other is only to be used when the patient is lying on a bed, which should slope from the head to the foot about twelve or sixteen inches; a machine which supports the head by the jaw or occiput prevents the patient sink-

¹ De Rachitide, translated by Nich. Culpepper. 1651.

² Heister's Chirurgie. 1739.

³ L'Orthopédie; ou, l'art de prévenir et de corriger dans les Enfants les difformités du Corps. 1741, vol. ii. p. 282. In this book, the terms orthopedia and orthopedie occur for the first time.

⁴ Le Vacher's account of his machine was published in 1784. Med.-Chir. Rev. cit.

⁵ Account published 1794. Med.-Chir. Rev. cit.

ing down in the bed, and keeps up a constant though gentle extension on the spine.¹

Chessher appears to have stretched the trunk with a windlass, and then to have fastened his collar and support upon the back, while the extension continued, "so that the patient could walk and move about with a constantly stretched spine."²

Shaw's mechanical couch is inclined, like Darwin's, but "the flat portion, on which the patients lie, consists of two parts: the upper one fixed, the lower capable of sliding down on the framework of the couch; the patient lies with the shoulders on the upper, the loins and buttocks on the lower part of the couch. When this latter is released, the tendency to slide down produces a certain amount of extension, which can be increased by the addition of weights, while a headstall may be applied, which prevents the patient being dragged down, and causes the extension to be more evenly distributed throughout the column."³

Guérin's couch is also "a plane slightly inclined, though its inclination is not meant to produce extension, for which purpose a windlass and straps fastened to the loins are used, the head being confined in a complicated apparatus. The plane part of the couch consists of three portions, the upper and lower of which can be turned on pivots to the right or left, so that each curved part of the patient's trunk may be screwed into a shape contrary to that assumed by the deformity."⁴

Verral's prone couch, for angular curvature, is one in which "the patient is kept lying on his stomach, with his head in a hole, for some months; that is, until, in favorable cases, the curvature has healed; the position seems at first sight unbearable, but patients generally affirm it to be comfortable."⁵

As to inventions of apparatus for the limbs, these were, until recently, mainly limited to that for clubfoot. Towards the end of the last century, there were Tiphaine and Verdier in France, Jackson in England, and Venel in Switzerland, who acquired considerable reputation in the treatment of clubfoot. They kept their appliances secret, however. But a patient of Venel gave a description and a card-board model of the machine used by the latter to Dr. Ehrenmann, who thereafter had an iron one made. Brückner of

¹ *Zoonomia*, vol. ii. p. 90, 1796. *Ibid.*

² *Med.-Chir. Rev. cit.*

⁴ *Med.-Chir. Rev. cit.*

³ *Ibid.*

⁵ *Ibid.*

Gotha saw this instrument and copied it; and Naumberg of Erfurt also procured an imitation. These three surgeons treated several cases with this instrument. Brückner¹ and Naumberg² founded on such treatment works on the subject. The imitation of Venel's machine was used as follows: The foot was first fastened in a leather buskin with a strap attached; then, while thus covered, it was placed in an iron box and the strap assisted in holding the limb immovable. The iron box or shoe is a very complicated apparatus with a staff or lever to run up the leg, and is composed of movable plates, screws, etc., which gradually squeeze the part into a normal shape, while the staff, turning the foot on its long axis, causes the sole to face directly downwards instead of inwards. One great feature of the treatment was the slowness with which it was commenced, the machine being at first applied only for an hour and with very little tension daily; then both time and force were gradually increased until the child could bear its application during the night. It generally took two years to complete the cure.

Sheldrake, an English mechanician and truss-maker, constructed an instrument, in which for the screw power he substituted a spring, "so adapted to the nature of the distortion that, when bound upon the limb, its action will draw the deformed parts into their natural situation. When it is necessary to allow of motion in the limb, that motion, by increasing the reaction of the spring, accelerates the cure."³ Scarpa, the celebrated Italian physician, used an apparatus which is still employed and known as Scarpa's shoe. It is similar to the imitation of Venel that I have described, only that Scarpa also substituted spring power for the screw force. The idea of the elastic spring he is said to have derived from Tiphaisne, and in connection therewith the following anecdote is recorded: "In the year 1781, during his residence in Paris, he passed, by chance, Tiphaisne's door, which was hung around with pictures of sundry monstrosities and deformities. He learned that these were taken from the feet of children whom Tiphaisne had perfectly cured, and immediately he tried to make acquaintance with that specialist. Scarpa saw him frequently; but his oft-repeated visits and questions extracted nothing from one so jealous

¹ Brückner, Ueber einwärts gedrehte Füße, 1798.

² Naumberg, Abhandlung über Verkrümmungen, 1796.

³ Observations on the Causes of Distortions of the Legs of Children, and the consequences of the pernicious means generally used with the intention of curing them. By T. Sheldrake, 1794.

of his secret as Tiphaisne, except on one occasion when he said, 'Nature will not yield to violence, but only to a gradual force'—a phrase which still further stimulated the Italian's desire to see the instrument. After many useless attempts, he at length succeeded, by means of the housekeeper, in penetrating, for a few minutes, into Tiphaisne's inner room where the patients were treated, but this only after giving his word of honor that as long as Tiphaisne lived he would neither say nor write anything on the subject. Scarpa, however, found nothing more than a steel spring lying on a cushion. This single part of the apparatus enabled a man so thoroughly acquainted with anatomy to construct (after a few experiments on spring power) the present shoe, which, if not exactly like that of Tiphaisne, is hardly likely to be inferior to it in efficacy and perfection."¹

About the beginning of this century, Scott obtained a very extensive popular reputation for the cure of diseases of the joints. His method of treatment was published by his son, a London surgeon. It was applicable only to chronic conditions. ("His remedy is inadmissible as long as inflammation exists in the joint, which it is sure to aggravate."²) It consisted in a complicated mode of plastering and bandaging that doubtless often did good on the principle of obviating muscular contraction, a principle not thought of, however, by Scott.

Harris published three or four cases of "extension and counter-extension being resorted to as a curative means in morbus coxarius." The apparatus he used was Gibson's modification of Phry-sick's long fracture splint.³

Brodie says: "At a later period when, in consequence of the extensive destruction of the articulation, the muscles begin to cause a shortening or retraction of the limb, I have found great advantage to arise from the constant application of a moderate extending force, operating in such a manner as to counteract the action of the muscles. For this purpose, an upright piece of wood may be fixed at the foot of the bedstead, opposite the diseased limb, hav-

¹ Preface, p. iii., of Malfatti's Translation from the Italian into German of Scarpa's work: *Sulle Piedi Torti*. (Originally published in 1803.)

² John Scott on the Treatment of Diseases of the Joints. Republished by William Henry Smith. London, 1857. (Originally published in 1821.)

³ Report of Cases by Dr. William Harris, published in Philadelphia Medical Journal, 1839. Am. Med. Monthly, editorial, May, 1861. Am. Med. Times, April 27, 1861.

ing a pulley at the upper part. A bandage may be placed around the thigh above the condyle, with a cord attached to it, passing over the pulley and supporting a small weight at its other extremity. I will not say that the effect of such a contrivance is to prevent the shortening of the limb altogether, but I am satisfied that it will, in a number of instances, render it less than it would have been otherwise, at the same time preventing or very much diminishing that excessive aggravation of the patient's sufferings, with which the shortening of the limb is usually accompanied."¹ He adds, however: "It is never prudent to have recourse to any mechanical means for the purpose of preventing ankylosis taking place, lest a fresh attack of inflammation and abscess should be the consequence."² And further: "In most instances, some contrivance may be employed, having for its object to maintain the diseased joint in a state of absolute immobility; and this should be always regarded as one of the principal points to be alluded to in the surgical treatment."³

March also recommended in the latter stages of *morbus coxarius* extension of the limb for preventing and obviating the deformity; but his plan was to make extension to bring the limb in its proper place and secure it fixedly by an improved splint of his own invention.⁴

Bauer devised an apparatus "to secure rest and position for an affected hip-joint," which he termed "wire breeches." It is similar to the *double gouttière* of Bonnet, of Lyons, having however attached to it a foot-piece allowing of extension. "The principle of the wire breeches had been borrowed from Hagedorn-Dzondi's splint."⁵

The list of those who have preceded me in publishing something relating to the *mechanical treatment* of either spinal curvature, club-foot, and other deformities, or of diseases of the joints, is of course a very long one. I have mentioned the various modes proposed and practised from the "beginning of medicine," as far as I have been able, and leave others to judge how much I might have been

¹ Pathological and Surgical Observations on the Diseases of Joints, by Sir Benjamin C. Brodie, Bart., F. R. S., Sergeant Surgeon to the King, and Surgeon to St. George's Hospital, with alterations and additions. From the fourth London edition. Boston, 1842.

² Ibid., p. 218.

³ Ibid., p. 147.

⁴ Transactions American Medical Association, 1853.

⁵ New York Journal of Medicine, 1853. The quotations are from remarks of Dr. Bauer before the New York Academy of Medicine, Bulletin of April 3d, 1861, Am. Med. Times, May 4th, 1861.

aided, had I earlier been familiar with the *entire literature of the subject*. I shall analyze the various modes presently.

I do not propose to speak in this place of the historical development of the constitutional and local medicinal treatment, nor to mention as to the operative surgical treatment, further than the data that Isaac Mincius seems to have been the first who performed myotomy for the cure of wry-neck.¹ Thelenius extended this idea, and in a case of equina-varus, divided the tendo-Achillis and the skin together in 1784. Sartorius in 1806, and Michaëlis in 1809, repeatedly performed the same operation. Delpech had recourse to it in 1816 and greatly improved the procedure, while Stromeyer perfected it and originated the subcutaneous method in 1831. Dieffenbach adapted it to cases of strabismus, and applied it more largely to contracted and distorted joints. Guerin divided a great number of the dorsal muscles in cases of curvature of the spine, etc. Who the first was who proposed puncture to relieve the effusion into diseased joints, I have not been able to ascertain.

Analysis of the various apparatus proposed from the time of Hippocrates to the period at which I entered upon the investigation, shows that the principles whereon the treatment was founded were *pressure, occasional or inelastic extension, more or less constant support, immobility of the parts and division or rupture of contracted muscles, with retention of the part in a fixed position thereafter*. These principles are not carried out, however, in each apparatus, and the mode of applying them was certainly very rude at first; but we can trace progressive improvement from the ladder, splint, and bandages of Hippocrates to the couch of Shaw, or the wire breeches of Bauer.

In the acute or earlier stages of joint diseases, "immobility," "absolute repose," "recumbent posture of patient and joint," "rest of the affected joint as well as of the whole body," were universally deemed the *desideratum*, "*the one thing needful*," until my mode of treatment became known. And if some "had never felt satisfied that something more might not be done,"² others seemed to have been desirous of and satisfied with obtaining an ankylosed joint with the parts in the best position. *I insisted from the first on the fact, that mobility is natural to and required by a diseased as*

¹ Tulpus, *Observationes Medicæ*, lib. iv., cap. lvii., p. 372, 1685. Med.-Chir. Rev. cit.

² As Dr. Bauer said of himself in his remarks before the New York Academy, already cited.

well as a healthy joint, and introduced that as one of the principles of my treatment. I insisted also from the first on the fact that pressure, mostly owing to muscular contraction, is the most active agent of destruction in the morbid process, which it is the object of my treatment to overcome; and I, therefore, directed my efforts to obviating, *in all stages of the morbid process*, the pressure to which the parts diseased are exposed. To attention to this, I ascribe mainly my success.

The distinctive principle of my treatment is the procuring to the diseased structures, support without pressure, and motion without friction. The treatment itself, concisely defined, consists in abtraction of the joint affected, by continued elastic extension.

The word *extension* has misled so many well-informed physicians, that I must dwell on it again, although I have alluded to it already. Many have averred to me that they cannot comprehend in what really consists the difference between my mode and some of the means previously employed, or in what the "*extension*" produced by my apparatus, really differs from ordinary extension. Yet, it seems to me, that on a little reflection, enough distinction can be appreciated between a force that fixedly sustains a limb in a position, previously more or less extended and a force that is actually and actively extending all the time, *i. e.*, that exerts a constant pulling power, instead of merely preventing immovably the retrocession of pulling previously exerted.

Essential parts of apparatus.—The essential parts of the apparatus are, simply, means of exerting an *elastic continually-extending* force on one side, and a resisting, counter-extending one on the other, and the essential part of the construction is, that while carrying out the *principle of treatment* (*viz.*, the securing to the diseased structures support without pressure, and motion without friction), it "permits the patient to walk about, and so does not injure his health:"—a requisite for the patient's recovery, insisted on by Sheldrake and Scarpa for clubfoot, occasionally acted on also in spinal curvatures, but *never* thought of in joint diseases, or at least *never attained*, as far as I know, *previous to my time*.

Improvements as to Material and Mode of Application.—As to the material used, and the mode of applying it, I believe I have also introduced some improvements useful for other surgical appliances as well as for my own apparatus. Adhesive plaster had first been recommended for extension and counter-extension in fractures, by

Gross.¹ I was the first to have it spread on twilled goods, and to point out certain chemical changes necessary to be effected in the oil of the plaster, to secure its firm adhesion to the skin, particularly during hot weather; also its application to parts in the manner now universally known, to increase its retention, and yet obviate undue local compression.

The peculiar form named "corrugated" cast steel, combining strength with lightness, a great desideratum in surgical instruments, I introduced, and I also introduced the "artificial muscles" of rubber into general use, in connection with which I beg leave to quote from one of my earlier papers, published in 1856. "There is one point in my mode of making extension which, I think, *from the long experience I have had in its use*, would be an improvement upon the general mode—and it is equally applicable in *all extensions and counter-extensions, those of fractures as well as contracted muscles*—viz., the use of rubber as an *extending power*. *This will act steadily and gradually without any violence, and with very little suffering in comparison with permanent fixtures*. When contracted muscle is to be overcome, it steadily wearies it until it quietly comes off conqueror. *I would earnestly recommend the Profession to give their attention to the use of this article for the accomplishment of extension.*"

I have given the date at which I commenced my mode of treatment. I have *never* made a secret either of my apparatus, the mode of applying it, or the conjoint medical and surgical, constitutional and local treatment that the individual cases require; *on the contrary*, I have, whenever occasion offered, *verbally and in detail, explained all* to my professional brethren, *urged the trial* upon them, and have given them all possible facilities for using it. Residing, as I did, however, in a country town of a few thousand inhabitants, in the centre of Massachusetts, and not infected with the "*cacœthes scribendi*," my success was not immediately trumpeted throughout the medical world, although all the neighboring physicians, and a few of eminence at greater distances, such as Dr. Miller of Providence, R. I., Dr. Buck of New York City, the late Dr. Twitchel of Keene, N. H., and many of Boston, Mass., knew of my treatment.

In 1855 I removed to the metropolis of New York, and immediately, at one of those pleasant social and scientific reunions given at that time by Prof. Parker, I had an opportunity, by special invitation, to lay my improvements before a larger medical audience.

¹ Gross on the Bones and Joints, 1830. Am. Med. Monthly, May, 1856, p. 330.

I was introduced by Dr. Parker as having "some new views of the pathology and treatment of joint diseases and deformities," and my hearers were evidently struck with the results and peculiar advantages that my treatment promised.

In the March, May, and June numbers, 1856, of the *American Medical Monthly*, I published a lengthy article on "Deformities and their Remedies," in which the whole plan of my treatment is fully laid down. Soon after, Dr. Parker published in an editorial article of the same journal a very flattering account of me and my success; this article contained a description of the principle *on* which the treatment is based, and of the apparatus *by* which it can be carried out.¹

In November, 1859, I reported "A Case of Pott's Disease, with Remarks on Morbus Coxarius, etc."²

About the same time I published an article "On the Effects of Pressure upon Ulcerated Vertebrae and in Morbus Coxarius, and the Relief afforded by Mechanical Remedies, with Cases."³ I gave a very detailed description of my apparatus, its application, etc. etc., under the head "The Mechanical Means adopted in the Treatment of Morbus Coxarius. (With a Plate)."⁴

A few months later I read, by special permission, before the New York Academy of Medicine, a paper on "The Pathological Basis of the Treatment of Joint Diseases," which was very largely published.⁵ Next, I made, by invitation, some remarks before the Academy in a discussion on Morbus Coxarius.⁶ I also collected "The Medical Testimony in regard to the Proper Mechanical Treatment of Joint Diseases" in pamphlet form, and distributed it widely to medical journals and the profession throughout the country.

This had been done to make my professional brethren at home fully acquainted with the mode, its advantages and superiority over all others. To diffuse the benefits of the treatment abroad, I sent out, as early as 1859, an instrument for morbus coxarius, by a medical friend, to exhibit it to the leading surgeons both in England and on the Continent. In 1860 I sent by another medical gentleman a second instrument, to be shown at all the principal hospitals.

¹ American Medical Monthly, March 1857, p. 187.

² Ibid., November, 1859.

³ New York Journal of Medicine, November, 1859.

⁴ American Medical Monthly, April, 1860.

⁵ Bulletin of Academy, September, 1860.

⁶ Ibid., April 3, 1861. Am. Med. Times, May 16, 1861.

In the mean time, allusions to my method had been made in several journals, medical and lay, and a number of imitators soon published "modifications" and "improvements," some without and some with giving me credit for the origination. Without going into detail, I may mention the names of Drs. Barwell, Sayre, Andrews, Hamilton, Taylor, E. O. Cooper, Alcott, Vedder, etc., as among those who took up my treatment, and practised it with greater or less success.

How undeserved the remark of Dr. Bauer in 1861 was, viz., that he could "not help regretting that Dr. Davis should have withheld from the use of the profession and the comfort of so many sufferers, such an excellent appliance," is made apparent from the preceding, and is answered by the following quotation from the introductory remarks to the detailed description of my method long before published. "I have delayed bringing the subject of this paper before the profession until time had given me an opportunity, not only to overcome any minor difficulties that might arise, but also to test its application, and compare the results with the modes heretofore practised. It is an unfortunate circumstance that so many new things are hurried before the profession in a crude state, to be condemned or die of neglect, when they could have been highly useful if the inventor or discoverer had taken time to digest and mature his plans, and then apply them until all objections or difficulties were overcome."

Summary of the Pathological Basis of the Treatment.—The careful reader will find running throughout the whole of this paper, and indeed through all the papers that I have published on the treatment of joint diseases since my first case of spinal disease in 1837, an opinion as to the causes operating to destroy, not only cartilage, but also bone, which differs materially from that hitherto generally entertained by the profession, and which forms *per se* the pathological basis of my method of treatment. It is, *that pressure upon the articulating surfaces plays an important rôle in the destructive process going on in diseased joints.* In the essay on this subject, which I had the honor to read several years ago before the New York Academy of Medicine, I have accounted for the difficulty of procuring from books direct evidence upon the point involved, by showing that those who have examined and reported cases, have not so recorded their observations as to give the desired information; for, not recognizing the true causes of the lesions discovered,

¹ American Medical Times, May 4th, 1861, p. 237.

they have given but a partial narration of the facts their examination would have revealed, had their attention been properly directed. Again, to illustrate, cases of fracture of the neck of the femur are reported, that had been under treatment by the straight splint for months. In the *post-mortem* reports, the state of all the articulations below that of the fracture are detailed, while that of the hip, the seat of the injury, is omitted.

Had the condition of the hip-joint been given in every instance of fracture of the neck of the femur, treated by the straight splint, and the result of dissection recorded, together with the description of the other articulations of the injured limb, the array of facts would have been abundant. As it is, I have obtained two cases from the books, in which all the facts having a bearing upon my theory are fully detailed.

I beg leave to quote a little more fully from the essay referred to. "During the course of inflammatory processes in and about the joints, after they have advanced to a certain point, the joint becomes in a measure fixed, and not unfrequently so much so, as to resemble true ankylosis. The time necessary to produce this result varies according to the character of the structure inflamed.

"Nature appears to establish this immobility of the parts as a remedial measure, and, so far, it is safe to follow her guidance. In order to do this understandingly, however, let us inquire what is her aim and intention in thus rendering the joint immovable. It undoubtedly is to protect the surfaces of the joint (that come in contact in the natural movements of the limbs) when diseased from friction. The pain which friction causes prompts the sufferer to second this intention of nature by his voluntary efforts. So far as this object can be accomplished by the muscles holding the joint motionless, they so act. Now, in effecting this immobility, are the muscles of the diseased joints relaxed, and therefore at rest; or, are they in a semi-contracted state, and thus fix the joint by acting equally on every side of it? It would appear, from some facts I shall adduce, that the latter is their condition.

"In inflammation in and about joints, when it has advanced to a degree that renders motion painful, if any attempt is made to flex or extend the limb, the motion is communicated to the part beyond, in a similar manner as when the joint is ankylosed.

"This immobility in some cases may be in part produced by the tumefaction accompanying the inflammatory process; but tumefaction is not necessary to the result, for in the very cases of chronic

morbus coxarius where no swelling exists, the immobility is most marked. Anæsthesia has been produced in these cases without relieving the fixed state of the joints; yet that there was not true ankylosis, was proved by the perfect freedom of motion after a few days of treatment by elastic extension.

“Again, in a limb with disease of the hip joint that has been under treatment until it will admit of flexion and extension readily if moved gently, yet if handled a little roughly, all the muscles will be upon their guard, and the pelvis will be found following every motion of the femur.

“If it is true that the diseased joint is held in a fixed position by a certain rigidity of the muscles passing to or beyond it, an amount of pressure corresponding to the contractile force of the muscles, as then exerted, must be produced upon the articulating surfaces of the joint. The inquiry may be made—Does not the joint in health sustain a much greater amount of pressure with impunity? To answer this question, let us examine a particular point in the mechanism of certain joints of which the knee furnishes an example. The lower portion of the femur terminates in two condyles, each of which presents an articular surface, narrower, but at the same time more extensive, antero-posteriorly than the corresponding articular surface of the head of the tibia. Not the whole, therefore, but only a part of the articular surface of the condyle can be in contact with that of the tibia at any moment; and the precise portion in contact varies with every variation of flexion and extension of the knee-joint; this will be evident, when we consider that the concave surface of the head of the tibia and the convexity of the condyles of the femur do not correspond. When the limb is in exercise, or when its position can be frequently changed, no difficulty arises from the contact and pressure, because then the point of pressure is constantly changing, and when not in exercise, its position is altered whenever any inconvenience is experienced. In health, therefore, the pressure is never exerted upon any one point for a great length of time continuously, but is ever changing from one part of the whole surface to the other.

“It is for this reason that the joint in health can suffer the weight of the body to rest upon it without injury; but when the parts are fixated by disease or artificially, the pressure, whether it be a portion of the weight of the body, or only the contractile power of the muscles (as exerted in fixing the joint), falls entirely upon a small portion of each condyle, and a corresponding portion of the head

of the tibia in contact with it. If it is admitted that only a small portion of the articular surfaces of the condyles and the tibia are in contact at any given time, in the normal condition, we are prepared for the inquiry, What will be the result of continual pressure, effected by the contractile force of the muscles while fixing the joint; a compression from which there may be no relief for weeks or months in succession?

"The effect of continued, unremitting pressure upon other portions of the body is well understood.

"Every practitioner cautions his pupils not to allow the heel to rest upon the bed while treating a case of fracture of the lower limb, warning him that, if he does so, the parts will slough; this result takes place, not because of the *severity* of the pressure, but from its *persistency*; from its not allowing, by change of position, the circulation, and consequently nutrition, to proceed uninterruptedly. The liability to this casualty increases, the less sensibility there resides in the structure affected. It is also promoted by diminished vitality. We can hence easily understand why it so readily takes place in the heel. I would call attention to this fact, as I shall have occasion to notice the importance of its consideration when applied to the effect of pressure upon cartilages.

"There are two reasons why diminished sensibility and nutritive endowment should render parts liable to destruction by pressure. First, the sensibility being slight, death of the parts occurs with very little suffering. Secondly, the vitality being low, less pressure is required to interrupt the vital functions, and thus cause death.

"I trust that I shall be able to show conclusively, that in inflammations external to the capsules of the joints, sufficient to render them motionless, absorption, if not death, results to those portions of articular cartilage in contact and pressing upon each other; that this occurs when the external disease has not extended to the articular surfaces, and that it is owing chiefly, if not entirely, to continued pressure; this pressure being limited to that portion of the articulating surfaces that are held in contact for a period of time, without intermission or change, by the muscles which control the motions of the joint affecting the parts, precisely as pressure does when applied to the surface of the body, viz., producing absorption, when not sufficient entirely to arrest the nutrition of the parts, and when going beyond this point, death, with exfoliation of the parts pressed upon. For *this is precisely the result* we find in joints rendered immovable by artificial means. If this result follows from

pressure in a previously healthy articulation, how much more destructive must be the process in a joint whose vitality is depressed by disease!

"This view renders intelligible the *modus operandi* by which cartilages and bones, in some instances, are so rapidly destroyed. This result to cartilages from pressure is rendered more readily admissible when we consider the manner in which they are nourished. Cartilages are without bloodvessels and nerves of their own; those of the surrounding parts terminate at their surfaces; those of the synovial membrane at its junction with the edge of the cartilage; those of the bone at its point of union with the cartilage. It is not necessary for my purpose to show the precise way in which cartilage is formed, only that it is possessed of a low grade of vitality. In respect to its mode of nutrition, the cartilage resembles the cornea; and, as the effect of imperfect nutrition upon this portion of the eye has been fully established, I would direct attention to this point to illustrate the influence of like causes upon the cartilages. The justness of the comparison will be admitted if we keep in mind the similarity of their modes of receiving their nutritive supply. In experiments instituted by physiologists upon the inferior animals, it was shown that the cornea was readily affected with ulceration, when they were fed upon certain articles of food that did not furnish them with proper nourishment. I mention this fact to show how easily parts which are not supplied with bloodvessels take on the *ulcerative process*. In the case of the cartilage, the cause is mechanical which interferes with nutrition, but the results to the parts immediately acted upon is the same, viz., deficient or interrupted nutrition by reason of uninterrupted pressure. That this result follows, is proved by an anatomical fact that the centre of the ulceration is always at the point of greatest pressure, as revealed on dissection.

"There is yet another reason, founded upon the structure of a joint, why continued pressure with immobility should be attended with danger. The cartilage being an elastic substance, and affixed to the ends of two bones whose surfaces do not precisely correspond with each other, the greatest amount of pressure must come upon the centre of those portions in contact, gradually diminishing to the circumference; in this respect they are unlike two solid bodies, where the pressure would be equal upon all the parts in contact. The difficulty that would arise from this construction of the parts in a small articulating surface like the hip-joint, where it is sub-

ject to great pressure, is somewhat obviated in this joint by a thickening of the cartilage around the upper surface of the acetabulum, in the form of a ring, which admits the extreme upper portion of the head of the femur to pass into it; thus presenting a larger surface to receive the pressure than would have existed had the cartilage been of an equal thickness throughout.

"When a joint or limb is rendered immovable, its functional law is violated, and a corresponding penalty incurred, viz., that following the loss of its accustomed exercise. A part suffers from this cause in proportion as its normal condition is one of greater or less motion; the joints and muscles must, therefore, suffer more in proportion than any other part of the body. This effect of rest has been noticed by authors as manifesting itself by ecchymosed spots upon a limb, as well as in a joint, rendered immobile; while its fellow not kept motionless, was not so affected. Rest alone might not be sufficient to produce, in a particular case, very deleterious effects; but when we add to it continued pressure, and that, perhaps, applied to parts already somewhat enfeebled, we have influences that are potent for evil—influences that have wrought the destruction of many limbs, if not lives."¹

¹ It gives me great pleasure to reproduce here the communications addressed to me, upon the point under consideration, by some of the most eminent surgeons among us.

September, 1860.

DEAR SIR: I have received your note of inquiry as to my observations in joints where the same points of surface have remained long in contact with the pressure of the muscles.

I beg leave to reply, that I have often seen in the knee-joint, after amputation, when the joint was opened, that where the surfaces had remained long in contact, the synovial membrane and cartilage were removed by absorption, and the bone at the same point dead for from an eighth to half an inch in depth.

In exsection of the knee-joint, on opening the cavity, I have found the same destruction to have occurred. The same pathological condition is observed at the hip-joint. Indeed, I regard it as established, that if the surfaces of the joints be allowed to remain long in a fixed position, the pressure from the muscles causes destruction of the substance making the wall of the joint. We see the same condition resulting in the joint, that happens when pressure is allowed upon the heel in the management of fracture—viz., ulceration and sloughing.

The more feeble the patient, from scrofula or otherwise, the greater the danger from pressure.

You particularly called the attention of the profession to the above pathological state, in the *American Monthly*, some five years ago, I think. You then stated the great importance in the treatment of hip diseases, &c., of keeping the surfaces of the

In two cases mentioned by Bonnet, of Lyons, *all the articulations*

joints from pressure by the application of extending and counter-extending force, and referred to the great value of India-rubber in applying the power.

The application of the splint in hip disease to establish extension and counter-extension, and at the same time permit the patient to walk and live in the air, as you have practised for years, is a matter of great moment. You have laid the profession and the public under lasting obligation. Yours truly,

WILLARD PARKER.

To H. G. DAVIS, M.D.

NEW YORK, Sept 3, 1860.

MY DEAR DOCTOR: On looking over my notes of dissections of diseased joints, I am sorry to find that the point about which you are most interested has not, in any one of them, been particularly noted, and I fear that you will find this to be the fact with most of the published cases, as it is a point to which the attention of observers has not been particularly directed. Since our conversation, however, I have seen the dissection of two knee-joints, amputated at the New York Hospital, which bear upon the point at issue. The first of these was a patient of Dr. Watson, who had been injured, I think, by a railroad contusion, some weeks before amputation. Suppuration and opening of the joint occurred, and, during his confinement, the limb was kept on an inclined plane at a slight angle. *On examination after amputation, we found the usual condition of synovial infl. and suppuration, but precisely at the spots where the condyles of the femur pressed upon the surfaces of the head of the tibia, there ulcerative action had gone on to so great an extent that the bone was exposed and already carious. This was the case on both the femoral and tibial surfaces of the articulation, and was the more striking, as in all the remaining portion of the joint, which had not been exposed to pressure, little or no ulcerative action had taken place.*

The second case was one in which the knee was amputated by Dr. Parker, for long-standing disease, where the joint had been open by an incision some weeks before the operation. We found here more extensive general arthritic degeneration, *but the ulcerative action was almost entirely confined to the points at which the bones had been so long in contact. At these points the disorganization had reached a point very nearly equal to that described in the first case, while the other parts of the articular surface showed thickening, vascularity, obliteration, superficial erosion, &c., but no deep or extensive ulceration.*

With regard to the other matter we were talking of, viz., the situation of the pus in cases of diseased joints, my notes are more explicit. I find I have recorded eleven dissections of joints which had undergone suppuration, either in the course of chronic disease, or in consequence of injury, seven being cases of chronic disease, and four of injury. In all these the dissection was conducted by first opening the cavity of the abscesses and noting how near they approached to the synovial membrane, and then by carefully opening the joint at some point where it was not covered by the abscesses, and carefully tracing the continuity of the synovial membrane. Thus examined, we found that in every case of chronic disease the abscess was external to the synovial sac of the joint, though generally approaching it in several points, so that only the thickened serous membrane intervened between the abscess and the synovial cavity. From these points of contact the abscesses were found to extend irregularly in all directions around the joint, forming numerous cavities and sinuses, all communicating with each other,

below the seat of the fracture were disorganized, while the hip joint, the

but not communicating with the cavity of the joint, except in one instance. In this case a narrow and tortuous track of communication was found between the extra-capsular abscesses and the cavity of the joint, which cavity contained pus. This was the only instance in which, in this class of cases, we found any pus in the joints, or any communication with the abscesses, some of which were exceedingly extensive, and of very long standing. In this exceptional case the abscesses had existed for a very long time, were entirely extra-capsular, and only communicated with the joint by the small track described.

In the four cases of disease originating from injury, an entirely different condition of things was found. In these the synovial sac was the seat of the suppurative action, and no extra-capsular abscesses existed at all. In the cases where the abscess had not been evacuated before the dissection, the synovial sac was found distended with pus, and in one instance it had given way, and the matter was beginning to burrow up the thigh. In the cases where the joint had been for some time open and discharging, the synovial sac was, of course, not distended, but it marked the limit of the suppurative action, though itself, as well as the cartilages, were much more extensively destroyed than in the cases of chronic disease. As these eleven cases of joint disease were not selected cases, but embraced all I had a chance of dissecting during the period of observation, some three or four years, I think they may be taken as indicating the general features of the anatomy of the disorder in its two phases, though of course it would not be safe to consider any pathological point settled by so limited a number of observations.

Hoping to hear from you again on these subjects, which seem to me to have most important practical bearings,

I remain very truly yours,

T. M. MARKOE.

NEW YORK, August 20, 1860.

DEAR DOCTOR: In thinking over the many cases of diseased joints which I have examined, after amputation and otherwise, my impression is strong that the greatest amount of disorganization has generally existed at those points where opposed articular surfaces have been habitually in contact with each other. This is, however, a general impression only, as until recently my attention has not been directed to this particular point of inquiry. A recent case in which I excised the knee-joint in a young woman for chronic strumous synovitis, afforded strong and indubitable evidence on the point in question. *In the centre of each of the articular depressions of the head of the tibia, I found a necrosed plate of bone, each about the size and thickness of a dime, lying loosely upon a bed of granulations.* The articular surface was elsewhere profoundly altered, but except at these points, not beyond possibility of repair to the extent of ankylosis. I was gratified in recognizing the necrosis in this case, as it demonstrated the propriety of the operation of exsection, which was followed by an excellent result, the patient recovering with an exceedingly useful limb. *The points of necrosis, you will have noticed, correspond with the localities upon the head of the tibia, with which the convexities of the two condyles of the femur have been in most constant contact.*

My friend, Dr. Krakowitz, informs me that in a recent successful case of exsection of the knee for similar disease, *he encountered the same appearance at the same points.*

I have heretofore believed on the evidence adduced by Bonnet, of Lyons, in his

*locality of the injury (the fracture being inside the capsule), remains in a healthy, normal condition.*¹

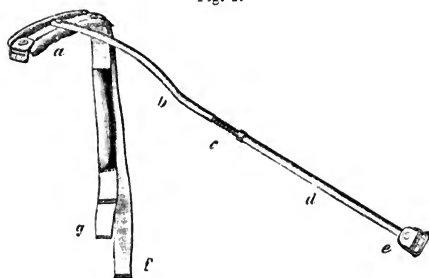
Prof. Valentine Mott corroborates the statement, that the point of greatest destruction is also the point of greatest pressure, varying according to the position of the limb during its period of immobility.

Description of Apparatus.—The apparatus, by means of which my treatment embodying the principles advocated in this paper can be carried into effect, is simple and easily explained.

It must be borne in mind, that I have already said that the essential parts of the apparatus are, means of exerting an elastic, continually-extending force on one side, and a resisting counter-extending one on the other.

The modifications it undergoes to adapt it to the various regions of the body, every physician can readily understand. I shall describe particularly the splint as applicable to the hip-joint. Reference to the wood-cut (Figure 1) annexed will further aid the reader.

Fig. 1.



An elastic perineal band (*g* in the figure) really constitutes the extending, adhesive plaster strapping around the limb, concentrating

monograph upon diseases of the joints, that prolonged immobility of a joint was always followed by inflammatory action, and this has been confirmed by my own observation; but it is not improbable that the contact and pressure of opposed surfaces may play an important part in causing and aggravating the tendency to disorganization at the points of greatest pressure.

Truly your friend,

WM. H. VAN BUREN.

DR. DAVIS.

¹ *Traité des Maladies des Articulations, accompagné d'un Atlas avec 16 Planches, par A. Bonnet, Professeur, etc. Paris et Lyon, 1845. Tome 1re.*

at a point a little above the external malleolus, the counter-extending power, while a metallic splint (*b*, *c*, *d*, *e*) is stretched between these, and enables them to fulfil the indications proposed.

The splint is composed of four parts, viz., an upper or pelvic portion (*a* in the figure), a thigh portion (*b*), a leg portion (*d*), and an ankle portion (*e*).

The thigh portion consists of a metallic tube curved above (*b*), to correspond to the convexity of the thigh, and ending below in a short, straight piece, to which a long iron double-threaded screw (*c*), also hollow, is firmly secured. The leg portion is a straight metallic tube (*d*), closely investing the screw (*c*), and projecting but little beyond. It is attached to the ankle portion (*e*) in such a way that, in revolving it, in order to lengthen or shorten the instrument, only the screw investment with its nut is turned, while the ankle portion remains unmoved. This ankle portion (*e*) consists of a triangular-shaped, flat piece of metal, covered by a buckle (as seen in the figure).

The pelvic portion (*a*) is more complicated than the others. A slightly curved strip of steel half an inch or more wide, from four to six inches (both the length and width varying according to the size of the whole splint) long, is riveted through its centre to the free extremity of the thigh portion, and admits of rotary motion. At one end of this strip of steel a buckle, and at the other the perineal band is attached, and the whole of it is well cushioned. The perineal band is formed of two bands (*f* and *g*), of a length, width, and strength varying according to the size of the apparatus and the circumstances of its application. One (*f*) is longer than the other and inelastic, being made entirely of strong cotton or linen webbing, the other (*g*) is, as it were, an oblong bag of India-rubber webbing (formed by sewing two strips of rubber webbing together) filled with saw-dust, obtained by sawing across the fibre of pine wood (not lengthwise), tipped at each end with some of the inelastic webbing (such as (*f*) is made of). While the inside elastic band keeps up the extension required, the inelastic sustains any weight that exceeds the extending force as then applied to the patient. It is this arrangement that enables the weight of the body to be borne without harm, as in walking, and that prevents injury from excessive weight or pressure upon the articulating surfaces in cases of accident. Thus, for instance, the head of the femur would, in walking, be violently thrust upward, as the elastic band would yield to an increased weight, were there no inelastic, unyielding

band to prevent it; yet, it is obvious that this inelastic band does not interfere with the predetermined amount of tension to be exerted by the elastic one. (This amount of extension is determined and regulated as follows: Buckle the two bands unequally, *i. e.*, let the loop formed by the outside band be longer than that of the inside, and attach a weight to the latter. The number of pounds requisite to stretch the one loop to the exact length of the other represents the amount of extending force the instrument will exert, when exactly thus buckled, when applied upon the limb.)

I will add here that the amount of extending force should be ascertained in every instance before fastening the splint upon the patient; this amount is not to be varied by altering, by means of the screw, the length of the instrument, but by adjusting the two bands.)

I have found the rubber webbing, with napkin protection to the skin, to be much superior to the rubber tubing. The tubing is seldom of the right elasticity, and is more liable to heat and excoriate the skin than the webbing, for the reason that it does not absorb the secretions, nor allow the air to come in contact with the skin.

The granular stuffing moves easily on itself and displaces readily, so as to equalize the pressure, as, for instance, over the adductor tendons in the groin.

The long splint is best adapted to the majority of cases. Some

Fig. 2.



Fig. 3.



years ago, I was in the habit of applying a shorter one (Fig. 2) to the femur alone. This leaves the knee at liberty, and in so far is an accommodation to the patient, but otherwise is not so effectual. (Fig. 3.) A splint formerly used by me.

I also generally use the long splint for disease of the knee joint, applying the adhesive plasters only to the tibial portion of the limb. I have devised, however, a very convenient instrument (Figs. 4 and

Fig. 4.

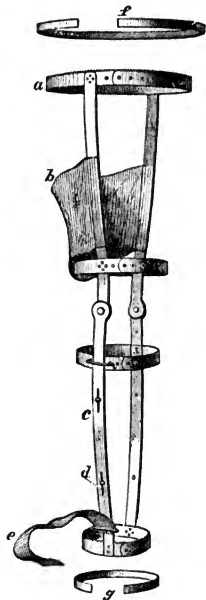
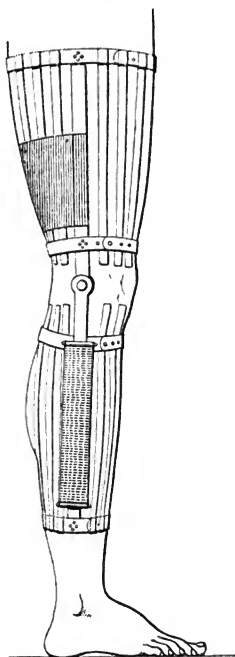


Fig. 5.



5) for extension at the knee joint, that admits of flexion and extension of that joint, which in cases not too severe is sufficiently effectual.

Extension should be constant; when not accomplished by the splint, it should be by means of a weight and pulley.

Mode of Application.—Cut from a piece of adhesive plaster, spread on twilled goods and kept until the oil entering into its composition has become oxidized, two strips from $1\frac{1}{4}$ to $1\frac{1}{2}$ inches wide, of the length of the limb from the pubis to the malleolus, and two strips a little narrower in proportion to the others, but one and a half

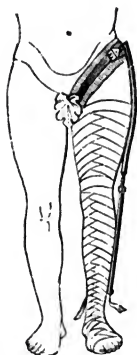
times as long. Fold about an inch and a half of one extremity of each of the first cut strips upon itself, the adherent sides to each other, and apply one on the outside and one on the inside of the limb, commencing with the folded end about two inches above the outer and inner malleoli, and extending it up in a straight line.

The other two strips are applied spirally around the limb as follows: Commence on the lower or folded extremity of the straight strip above the outer malleolus, and wind around in front and back, so that the two spiral strips meet in front, a little distance above the patella (as very well depicted in the wood-cut, Fig. 6).

Fig. 6.



Fig. 7.



Next, sew a piece of firm, *inelastic* (linen or cotton) webbing, about $1\frac{1}{4}$ inches wide and from six to eight inches long, to the lower extremity of each straight strip, taking particular care to include in the attachment the ends of both spiral strips above the external malleolus. The limb is then closely and firmly enveloped with a common roller bandage, from the foot upwards (as shown in Fig. 7), the pieces of webbing only being left outside free. Now buckle the ankle portion of the splint upon the external face of the limb by means of the webbing; protect the skin of the groin and parts to be covered by the perineal band by a piece of old, soft napkin or table linen, several times folded and secured by a few stitches; and having previously adjusted the two bands composing the perineal band, as mentioned on p. 163, fasten the latter around the thigh, always taking care to have the buckle on the pelvic portion

of the splint in front; the screw of the splint regulates its length, so that the required amount of extension can be secured. When all is correctly arranged, and proper extension made, the upper extremity of the splint should fall just below the crest of the ileum.

Infrequency of Bony Anchylosis.—I now invite the reader's attention again to the quotation from my essay on "The Pathological Basis of the Treatment of Joint Diseases" (on page 154), in which I have mentioned the anchylosed condition of diseased joints. It is a fact of very great importance that *true* or *bony anchylosis* is of much less frequent occurrence than is usually supposed. *Apparent* anchylosis is due to the shortness of the attachments of the soft parts surrounding the joint. This is the condition of contracture of muscles; a *passive permanent shortening* and *rigidity*, a form of atrophy supervening after muscles have remained for a considerable length of time, morbidly contracted. How this change, which from its permanence may safely be regarded as structural, is brought about, is difficult to explain, especially as the opportunities for its thorough examination have been very limited.

Barwell thinks it is "located in the sheath of the fibres rather than in the fibres themselves. Every fibre of a muscle is composed of a sarco and of an investing wall; the active contraction of a muscle is produced by shortening of the flesh; passive contracture appears to supervene after the interior has been for some time in this shortened condition, when the investing part adapts itself permanently to that shape, and each wall of every muscle cell is fixed in its abbreviated form. Moreover each portion of areolar tissue investing the fibrous bundles, assumes permanently the new form impressed upon it by the inclosed and contracted cereos. Such change does not forbid continuation of active contraction, for the state (contracture) depends upon change in the passive parts of the organ, to which ordinary muscular contraction may be added."¹

I have quoted these views in detail, that the reader may have the full benefit of the Doctor's explanation. It appears to me, however, that a much more concise, and probable correct explanation of the change is, that all the loose, unnecessary material, including

¹ A treatise on Diseases of Joints, by Richard Barwell, F. R. C. S., Assistant Surgeon Charing Cross Hospital, etc. London, 1861; foot-note, p. 315.

not only the investing walls, &c., but the muscular fibre itself, is removed.

This is in accordance with a well-known fact resulting with other conditions, viz., that a part that is not needed under existing circumstances, is removed.

I have in a number of instances, secured for the patient full motion of the hip-joint, by continued elastic extension, after years of what was considered by prominent surgeons true ankylosis. In two cases this has been effected after a lapse of ten years. That it was dependent upon the causes mentioned, is corroborated by the process of restoration. There was no effort to break up adhesions by violence, but to place the soft parts in a state of *continuous tension*. This has been effected not only in *fixated* joints, but also in dislocations of long standing. I have never yet failed in securing motion in any case of *fixated* joint put under treatment for this purpose. That bony union may take place, I do not attempt to deny; my statement is this, *bony union is the exception, not the rule*.

Non-necessity of Tenotomy.—In this *contracted condition* it has been urged that the muscles cannot be stretched or elongated by any amount of extension short of rupture.

"On the contrary, any attempt at extension of a muscle in this condition only irritates it the more, and by persistence will produce chronic inflammation of its fibres, which, if continued, will always end in fatty infiltration and degeneration, after which it will never be restored to its natural contractility and elasticity. And the constitutional effects of a persistent attempt to extend an inflamed muscle are really as bad, if not worse than would be produced by the disease, if left to the unaided efforts of nature."¹ This is as erroneous and short sighted as the "TEST," on which the author relies for determining the necessity of tenotomy in these cases, viz., *anæsthesia*. Thus, "if when under the full influence of chloroform or ether, the muscles relax, and the position can be improved, then gradual and continual extension will accomplish the object; if, on the contrary, the limb remains immovably fixed under the *anæsthetic*, then section is necessary."²

Now this test simply proves, *if it really prove anything*, that the

¹ Objections to the Treatment of Morbus Coxarius in its advanced stages by extension, unless preceded by tenotomy. By Lewis A. Sayre, M. D., American Med. Times, May 9th, 1863.

² Ibid.

ligaments, muscles, and soft parts are actually shortened; that tenotomy is *necessary* to remedy this condition, is another question. I can assert with perfect confidence, a confidence derived from and confirmed by the experience of many years, that tenotomy is *not* necessary in such cases, and that it does not even expedite the cure. Besides, it has occurred occasionally, and but recently in the hands of Dr. Sayre (a case which terminated fatally), that the femoral artery has been cut by mistake, and the patient thus even runs a risk of losing his life.¹

When *continued elastic extension is properly applied*, myotomy or tenotomy is seldom if ever necessary; but when *improperly applied* (*i. e.*, thoughtlessly and mechanically, as it undoubtedly was in the cases quoted by the author), there will necessarily be an aggravation of the suffering of the patient.

The result for good or evil depends entirely upon the *mechanical application* of the *extending force*. Under the influence of *continuous tension properly applied*, the muscles, ligaments, and other soft parts positively and absolutely elongate. There is no breaking up of muscular fibre and no mere stretching, but they *gradually grow, i. e.*, lengthen by deposit of new material. Dr. Barwell recently published a paper "On certain Grave Evils attending Tenotomy, and on a New Method of curing Deformities in the Feet," in which he advocates the application "really" of continued elastic extension in the following manner:²—

"A broad and long piece of strapping-plaster, spread on a thick material, is made to adhere over the origin of the muscle and along its course. Upon this is laid a piece of sheet tin, long enough to reach from the upper part of the leg to just above the ankle, and carrying at its upper part a wire loop; the piece of strapping is turned back over it, and lies with its adhesive side outwards. Another piece of strapping is placed on the foot upon the insertion and along the course of the tendon; the end of this strapping reaches to the bend of the ankle, and is folded over (the two sticky

¹ The only published account of this case appeared in No. 46 of the *Scalpel*, published in this city; this report has, I believe, never been contradicted, but has been corroborated by medical gentlemen who were present. The facts appear to be that the femoral artery was wounded, the cardiac side only was ligatured hemorrhage followed from the distal portion, causing the patient's death. This is only one of the direct liabilities of the operation; secondary accidents will occur, and are well known to surgeons.

² Braithwaite's Retrospect, American reprint, part the forty fifth, p. 121.

sides opposed), and an eyelet let into it. An assistant is now to hold the limb as near as possible in the right position, while it is being smoothly strapped from the toes to the knee, leaving out the end (with its eyelet) of the piece on the foot and the wire loop at upper part of the leg. Between these two—the one representing the origin, the other the insertion, of the muscle—there is to be stretched an India-rubber spring, at a proper degree of tension. Thus, while there can be considerable force used in the direction of any muscle in the leg, the *point d'appui* is so supported by a loop of strapping, which takes its bearings from both the skin of the leg and the surrounding plaster, that no injurious pressure occurs anywhere. There are also some little contrivances for changing the direction of the force—as for the peronei tendons.”

The fact of Dr. Barwell and others in Europe succeeding by this process, in elongating “contractured” muscle and ligamentous fibre, confirms my own practice. It is almost needless to add here, that the latter has led the way.

It will be perceived that I have limited my subject to the mechanical treatment of joint diseases and deformities. This does not interfere with any local or constitutional remedies that any practitioner may choose to adopt. To enter into the details of full therapy, and to speak of all the varying circumstances and necessities of every case of disease of the joints, would carry me far beyond the purpose of the present paper. Suffice it to say, that my constitutional treatment consists in putting the system in the best possible condition to desire and assimilate food. For local application I use more than everything besides, the bichlorid. hydrarg. particularly in synovitis. I am in the habit of applying it every day or two; from the size of a nickel cent to that of a half dollar, producing an ulcer sufficiently deep to remain several days. In acute synovitis the application should be much more extensive.

The earlier the treatment proposed in this paper is instituted in diseases of the joints, the more certain will be the recovery without disorganization; but through all the *stages*, the effort should be to retain the limb at its full length and normal position. Recovery cannot only more readily take place while in this position, but the limb will also be incomparably more useful, as well as ornamental.

In witnessing the remarkable and frequently unexpected results in recovery of motion from the persevering application of “con-

tinued elastic extension," one becomes more and more aware of the full significance to be attached to the strange words of the French quacksalver, *Tiphaisne*, that made so profound an impression upon the Italian physician, *Scarpa*. Verily, they are words that might well be written in letters of gold: "*Nature will not yield to violence, but only to a gradual force!*"

Respectfully submitted,

HENRY G. DAVIS.

CASE OF DIARRHŒA ADIPOSA.

BY

JOHN H. GRISCOM, M. D.,

PHYSICIAN OF THE NEW YORK HOSPITAL.

CASE OF DIARRHŒA ADIPOSA.

FRANCIS FLANIGAN, æt. 35, Ireland, soldier, admitted into the N. Y. Hospital, March 3, 1863.

History.—Eight years ago the patient was first taken sick while in the British army at Balaklava, with chills and fever. Before he recovered from the fever, he was attacked with a diarrhœa, which ran into a dysentery with tormina, tenesmus, and bloody stools. At this time he first noticed a weakness and dull pain across the kidneys, which he has had more or less ever since. The dysentery continued for twelve months, and he was not cured until after his discharge from the army, and subsequent return to England. Before he was cured of the dysentery, he noticed that his legs and feet were becoming œdematous, followed by slight ascites. The dropsy was relieved, and for six months he was pretty well; when the anasarca commenced, he first noticed that oil was passed with his feces, sometimes mixed with them, sometimes by itself. Ever since he has continued to pass oil more or less. When first taken sick he had a severe pain in the right hypochondrium, which has been repeated every winter since, together with pain across the abdomen. Sometimes the abdomen would become very tympanitic, which was relieved by voiding wind. Sixteen months ago he was attacked with unusual tympanitis, pain in the right hypochondrium, and griping pain in the bowels. He went to the hospital in Dublin. Dr. Jennings, of that city, examined his urine and feces, and told him that the feces contained oil, that his liver was affected also, and that he would always have a weak back. The treatment employed was quinine and blue mass pushed to a slight salivation; he was also leeches and blistered over the right hypochondrium, and the blister was kept open for sixteen days with blue ointment, and discharged very freely. Six ounce of whiskey per diem, with porter, was ordered, and he was told always to take

whiskey, as it was observed that the use of spirits diminished, and often entirely suspended the discharge of oil. He left the hospital feeling nearly well. He had taken whiskey daily since, except for the last two months, during which time he has been in the House of Detention, where he could not obtain it. His bowels have generally been quite free, two, three, or four passages a day since he first began to pass oil. The stools are often copious, light, almost of clay color, and of fair consistence generally. He has never been able to retain the feces when the desire to defecate comes on. The oil often drops from him involuntarily. It and the feces are never intimately mixed, but are passed separately. He passes more of it in the winter, and is never as well during that season; he has headache, pain in the bowels and right hypochondrium; feels cold when he does not take liquor; feet are always cold. He has never noticed anything unusual about his urine. He thinks his feces are of a darker color when he takes liquor. During the past two months, during which he has been deprived of whiskey, he has passed more oil than usual.

He has never noticed or tried the effect of dieting, except with regard to liquor. He has always had a good appetite. He had a chancre twenty years ago.

On admission, he is found to be a well-developed man, presenting a perfectly healthy appearance; complexion good; tongue coated with a slightly whitish fur; appetite very good; bowels free; stools copious, of a light yellow color, of fair consistence, and contain oil. Pulse 76, and good; complains of pain in the right hypochondrium, and a feeling of weakness especially across the kidneys, and occasional headache; says he is troubled with palpitation and shortness of breath after exercising or running up stairs. He says he has lost some flesh. There is an absence of nervous symptoms.

Physical examination reveals nothing abnormal about the heart or lungs. Liver slightly enlarged; about two inches below the xyphoid cartilage is a small tumor of one and a half inches in diameter, disappearing on pressure, the impulse of which is felt on coughing, constituting a ventral hernia.

An examination of the urine reveals neither albumen nor casts. The substance resembling oil in the dejections is soluble in ether, melts with slight heat, loses its feculent odor, and leaves a greasy stain. Under the microscope it is seen to consist of oil globules simply.

Treatment.—Ordered *mist. ferri et cinch.* ʒss ter in die. House diet.

March 6th, 4th day in hospital. About the same. Has passed six ounces of oil since admission. Ordered *fer. et quin. cit. gr.* x ter in die. Omit former prescription.

15th, 13th day. Patient feels stronger—continues to pass oil. Ordered whiskey, 6 oz. per diem. (Care was taken to notice every stool, in order to avoid any possible deception.) Continue treatment.

21st, 19th day. For the last eight days has passed oil but once, about two ounces. Stools, which were nearly of a clay color, have become darker, probably due to the iron in the prescription. Bowels moved twice in the twenty-four hours. Patient feels much better. He has had no headache for the past week, no pain in the right side, and is gaining flesh. A diet free from oleaginous matter has been ordered, but could not be rigidly complied with.

27th, 25th day. Improving. Passed a little oil five days ago. Treatment continued.

April 14th. The patient a few days ago was appointed nurse in another ward in the hospital, since which he has not taken any whiskey, and yesterday says he commenced to pass oil again. Feels weaker since the omission of whiskey, and has always noticed that he was weaker when voiding the oil.

15th. Says he feels pretty well, and quite strong, very much better than on admission. Discharged relieved.

Note.—Flanigan was in the custody of the U. S. authorities as a witness, and though sent to the hospital from the House of Detention for treatment, he was several times required in court, and during such absences he was, of course, beyond our pale of observation. He acknowledged that on such occasions he indulged pretty freely in liquor, at times almost to intoxication. The amount of oil passed daily is believed would average two and a half ounces.

DIARRHŒA ADIPOSA.

Analysis of Reported Cases.

NO.	REPORTERS.	AGE AND SEX	CHARACTER OF THE DISCHARGE.	PRECEDING AND ACCOMPANYING SYMPTOMS.	RESULT AND PATHOLOGICAL APPEARANCES.
1	Dr. R. Bright.	M 49	Resembled butter once melted and solidified.	Diabetes mellitus, urine afterwards scanty; jaundice; enlarged liver, and gall-bladder enormously distended.	Head of the pancreas transformed into a hard globular mass; scirrhous ulcers in duodenum; pancreas hard and cartilaginous; liver and all parts gorged with bile.
2	Dr. R. Bright.	F. 50	Melted grease.	Jaundice; diarrhœa; pain in abdomen; vomiting; black defecations, with blood.	Head of pancreas a hard lump, egg size, firmly glued to duodenum; latter deeply ulcerated.
3	Dr. R. Bright.	F. 21	Grease; first fluid, then solid.	Anasarca of lower extremities and abdomen; jaundice slight; defecations deficient in bile, very fetid, copious.	Liver enlarged, olive-green color, gorged with bile; gall-bladder distended; intestines ulcerated from pylorus to colon, with fungoid excrescences; pancreas had two fungoid tubercles involving two-thirds of its structure. Died tympanitic.
4	Moellenbrocus, 1671.	M.	<i>Materiem pinguem</i> , like fat of beef; two years' duration.	Grow thin and weak.	
5	Mæbins.	F.	"Like human fat," daily.	"Wasted away."	Died.
6	Fabricius Hildanus. ¹	F. 50	White, pure, detached pieces, surrounded with pellicles.	Preceded by pain in abdomen; 3 pounds discharged in one day, with recovery from all symptoms.	Recovered.
7	Edinburgh Med. Essays, 1752.	M. 40	Like "tallow, or hardened marrow; small globules."	Preceded by a severe pain in the loins from violent exertion.	Result not given.
8	Dr. Wm. Scott, of Howick, 1777.	F. 24	Great numbers of fatty substances, size of nuts, beans, &c.; burned like tallow. Continued three weeks.	Pain in the stomach; loathing; obstruction of menses; colics; flatulency.	Recovered completely.
9	Dr. Babington, 1813.	F.	Globular concretions, cutting like wax, cream color, size of peas and grapes, melting by heat.	Sufferings resembled irritation of gall-stones.	Suffered many years.
10	Dr. Babington. Related by Sir Everard Home.	F. 4½	Ran from her as she walked; fluid like oil; concreted when cold; 1 to 3 ounces at 10 to 14 days' intervals, for a year and a half.	Sallow complexion; "liable to jaundice;" belly tumid, not hard; appetite and spirits good; occasional griping.	Not stated; supposed recovery.
11	Mr. Howship, 1809.	F.	Soft greasy substance, faint greenish color; burnt quickly with flame; "astonishing quantity."	Violent pain in hepatic region; jaundice and pyrexia for several days.	Entirely recovered after swallowing a pint of olive oil.
12	Dr. T. Turner.	F.	Solid; size of almonds; four to eight daily for a week.	Hysteria; enormously distended abdomen; great quantities of feculent matter for several weeks.	Recovery.
13	Tulpius, 1653.	F.	Like melted butter, every day for fourteen months; Concreted when cold. Burned with a flame.	Frequently had tertian ague, and "obstruction of spleen;" "no tormina, emaciation, or colicquate fever."	16 years after she was in excellent health.
14	Tulpius.	F. 70	Similar fat from both intestines and bladder. (?)	Feverish and emaciated.	"Death found her little else than a juiceless, dried-up corpse."

¹ Fabricius Hildanus paid a visit, Aug. 6, 1612, to Dr. Daniels, the most eminent physician of Louisburg, who was well acquainted with this "pious and virtuous matron," and had seen the fat, which she had preserved many years.

DIARRHŒA ADIPOSA.

Analysis of Reported Cases—Continued.

NO.	REPORTERS.	AGE AND SEX.	CHARACTER OF THE DISCHARGE.	PRECEDING AND ACCOMPANYING SYMPTOMS.	RESULT AND PATHOLOGICAL APPEARANCES.
15	Dr. Elliottson, St. Thomas' Hospital.	M. 45	At first liquid; became yellow like a concretion of oil. Previous to admission lost blood from bowels for 12 months; on this appearing hemorrhage ceased; quantity enormous.	Phthisis and diabetes mellitus; excruciating pain in abdomen and back, and diarrhœa.	Death. All the intestines looked yellow, and as though soaked in oil; numerous black points; liver healthy; pancreatic duct crammed with white calculi; kidneys sound; lungs tuberculated.
16	Mr. Pearson.	F.	Both solid and liquid; two and a half ounces of fat, and three and a third of oil daily. Fœces pale and odorless.	Liver enlarged and painful; vomited daily several times for several months.	Death. No disease of intestines or kidneys; liver large, pale, but healthy; no bile.
17	Mr. Pearson	F. 79	Fat and oil; one and a half ounces from bowels and one-third from bladder. Formed good soap with alkali.	Gall-stones for some years; pain in head, giddiness; dull pain in liver; <i>prurigo pudenti</i> , gouty constitution.	Death. No <i>sectio cadaveris</i> .
18	Dr. Prout.	F.	Large quantity mixed with blood, and "other things." Many months continuance.	Not mentioned.	Cæcum much thickened; mucous membrane ulcerated, other viscera healthy.
19	Quoted by Dr. Jas. Johnson, in his Journal, July, 1829, from <i>Annali Universali</i> .	M.	Thirty pounds vomited in twenty-four hours; thick oil or melted fat. He nearly sunk; skin hung in folds, as though all the fat was absorbed. None was discharged from intestines.	Had ordinary vomiting every week or fortnight for two years; one evening the attack was more severe than usual, after great imprudence in diet, when the discharge of oil by stomach occurred.	Restored to health in 20 days, with considerable loss of bulk.
20	E. A. Lloyd, of St. Bartholomew's Hospital, 1832.	M. 48	At first fluid; on cooling became of the consistency of butter, sometimes firmer as if mixed with a little wax.	Distended liver and gall-bladder; jaundice; stools clay-colored; vomiting.	Death. Stomach greatly enlarged; head of pancreas hardened, forming a tumor; duodenum contracted; liver and gall-bladder engorged with bile.
21	Dr. A. A. Gould, Boston, 1836. Catalogue of Anat. Museum of Boston Soc., 1847, p. 174.	M. 40	Transparent oily substance, hardening in five minutes to consistency of beef tallow; ten defecations daily for five months, one-half a pound daily of oil.	Constipation, followed by diarrhœa; discharges without bile, but much blood; extreme tenderness of epigastrium.	Death four months after oil ceased; pancreas distended into a large cyst, containing 10 to 14 ounces of bloody looking serous fluid; no appearance of fatty matter; two pancreatic calculi near the opening of the duct; "no appearance of malignant disease;" no trace of bile in ileum; gall-bladder distended with dark-green bile. 13 and 3 years before death, had recurring hemorrhages from bowels.
22	Alfred Clark, M.E.C.S. Lancet, Aug. 16, 1861.	F. 67	From three to nine ounces daily. Fluid, pale colored, very offensive; solid on cooling.	Very costive; liver inactive; frequent painful spasms in hepatic region, attributable to gall-stones, which formerly troubled her from time to time.	Death in three months. Emaciation; anasarca of legs; fluid in both pleuræ and pericardium; lungs healthy; heart fatty, soft, and flabby; pancreas a mass "of nothing else but fatty tissue;" nutmeg liver, and small; no bile in gall-bladder or ducts; a mass of calcareous matter in remains of pancreatic duct; no scirrhus disease.

DIARRHŒA ADIPIOSA.

Analysis of Reported Cases—Continued.

NO.	REPORTERS.	AGE AND SEX.	CHARACTER OF THE DISCHARGE.	PRECEDING AND ACCOMPANYING SYMPTOMS.	RESULT AND PATHOLOGICAL APPEARANCES.
23	Dr. W. L. Wells, 1852. N. Y. Med. Times, Feb. 1854.	M. 45	Resembles lamp oil; cooling to wax consistence. Daily discharges for two years or more, averaging three gills; often runs away involuntarily; never mixed with feces.	Shortness of breath; palpitation of heart; epigastric pain, and tenderness; pain in right hypochondrium; ejection of food; "feces deficient in bile generally;" no loss of flesh; continues at work.	In a few months he bought a farm, lived on it, and in a few weeks the daily discharge disappeared. A year afterwards it had reappeared only two or three times, slightly.
24	M. le Dr. de la Tremblaye, 1852. Quoted by Cl. Bernard in the "Mémoire sur le Pancréas," Chapter Third from "Recueil des travaux de la Société Médicale d'Indre et Loire."	6	The solid feces sometimes covered, at least partially, with a yellowish pellicle resembling congealed fat; the diarrhœal evacuations were often like oil in which the feces had been diffused, lasting eight days.	Gradual loss of appetite, feebleness and emaciation; vomiting of food, mucosities, and bile; fourteen months after these symptoms a very copious pyralism, terminating in death in four months; permanent pain in the epigastrum and umbilical region, increased by pressure and vomiting; obstinate constipation during all the sickness, until eight days before death, when there was copious and continual diarrhœa.	<i>Autopsy.</i> —Pancréas of ordinary size; its tissue everywhere diseased, except at two well circumscribed points; it had a deep reddish-brown color; its tissue was much softened under the knife; had the same color as externally, rendering the glandular tissue indistinguishable. One of the healthy parts was about a quarter of the head, the other, the eighth of its left extremity, were of a grayish-white color, and of normal consistence. Liver entirely healthy. Stomach and duodenum presented traces of chronic inflammation, with thickening of their coats.
25	Dr. Griscom, 1863. N. Y. Hospital.	M. 35	Like melted butter, hardening on cooling. From one to two and a half ounces per diem, at frequent intervals, during six years.	Followed protracted dysentery and anasarca; pain in region of kidneys and right hypochondrium; general moderate weakness; good appetite; stools lead-colored, free, and semi-consistent.	Discharge ceases on the imbibition of 6 or 8 ounces of whiskey per diem.

REMARKS.—The foregoing summary of cases was compiled partly from the reports of Drs. Bright and Elliottson, contained in Vol. xviii. of the *Medico-Chirurgical Transactions*, and the rest from the various works in which they originally appeared, or journals to which they were transferred.

Dr. Thos. Watson, in his *Practice of Medicine*, states that he has never seen a case of *diarrhœa adiposa*, and subsequently can only speak of it as observed by others. From this, together with the very small number of cases discovered by a diligent search, it is believed to be an exceedingly rare circumstance, and that the table contains all that have been publicly reported in English and French writing.

Of all who have written upon the subject, no one appears to have succeeded in presenting a theory of the origin and source of the peculiar discharge, entirely unobjectionable, or closed against criticism. Till the time of the appearance of the able work of Cl. Bernard, *Mémoire sur le Pancréas*, various efforts were made to trace it to diseases of different functions or tissues, but each in turn was abandoned by its author, as further experience developed facts militating against it. Bernard's experiments on dogs appear to show that the digestion of fat is wholly arrested by the withdrawal by the pancreatic secretion. But M. Bernard's proofs of this, though strong, and rendering his theory highly probable, rather fail in the *ultima ratio*; while in the curious experiments of Brunner, published in 1790, in which a large part, if not the whole of the pancreas, was excised or destroyed in the dog, the health and activity of the animal were maintained, and the functions regularly performed for a considerable time afterwards to an extent which is scarcely consistent with the idea that the digestion of the fat was wholly or nearly suspended.

Of the twenty-five cases here collected, fourteen died, and of four the issue is not mentioned by the reporters. Eight are stated to have recovered entirely, or to be so far improved as to experience no inconvenience from the symptom. Among the fourteen fatal cases, eight were found to have diseased pancreas, and four were not examined after death.¹

Of the cases of the preceding table, Nos. 1, 2, 3, 15, 20, 21, 22, and 24 are cited by M. Cl. Bernard, in his *Mémoire* in confirmation of his views respecting the rôle performed by the pancreatic juice in the digestion of the oleaginous portions of the ingesta. In his "conclusions upon these pathological observations," he remarks as follows:—

"We might cite still a large number of cases in which the presence of fat in the excrements has been noticed, without the condition of the pancreas having been made known by autopsy, either because the patients have been restored to health, or because the attention of the physicians has not been awakened to the possible relation of this symptom to derangement of the pancreas.

¹ In the case reported by Tulpus (No. 14), the similar discharge alleged to have issued from the bladder with the urine, is believed to have been an involuntary discharge of the oil from the rectum occurring at the same moment, and for which it was mistaken. A similar correction was ascertained, upon close investigation, to be necessary in other instances.

"But it is proper for us to remark that these oily evacuations generally occur only in chronic affections of the pancreas, because in acute disorders of that organ the patients have fever, and eat nothing. Mr. Fearnside has noted several cases of acute disease of the pancreas, giving various other symptoms, but in which he remarks the absence of fatty matters, which he is able to explain up to a certain point by abstinence from food, and the consequent non-ingestion of fatty substances in the intestine. It is in fact impossible to comprehend the evacuation of fatty matters without their ingestion with the food. In many of the cases we have cited, as well as among the lower animals, it was always readily observed that this fatty excretion was in direct relation to the ingesta. If in certain cases this relation has not been established, it is probable that it does exist, for otherwise it would be necessary to admit that the fat may be evacuated by the intestine, and be derived from some other source than the food. It is said, it is true, that cases have been observed of the excretion of fatty matters from strumous tumors of the mesentery, with integrity of the pancreas. But these cases are not sufficiently clear respecting any alteration of the pancreas, and if they do exist, they will not in any manner invalidate those which we have seen, and have reported."¹

From an examination of the cases in the preceding table, there appear several notable objections to the theories of M. Bernard, that these oily dejections are derived wholly from the ingesta, *i. e.*, *directly*, and that their existence in the intestines depends upon *chronic* disorders of the pancreas, while acute derangements of that organ are necessarily free from such results.

The first objection is, the enormous quantity reported in some cases to have been discharged, amounting in one instance to thirty pounds in twenty-four hours, though in this case it all came *via* the stomach. Admitting the truth of this statement (and there appears no reason to doubt it), the theory of Bernard is utterly untenable, that it was derived from the ingesta. Besides this, in

¹ In allusion to the cases of Dr. Bright and the matters discharged, it is stated by Dr. Chambers in his work on *Digestion and its Derangements*, "most of course have been thrown away, but one example" (doubtless the second in the preceding table) "which has been preserved in the Museum of the College of Physicians, turned out, when the museum was put to rights in 1850, not to be fat at all. In fact, microscopic examination showed it to be muscular fibre, a lump of meat washed white in its passages through the bowels of a dyspeptic patient."

several cases the ingesta were mostly vomited, emesis being a troublesome and persistent symptom.

In the cases of the two children mentioned, one, four and a half, the other six years of age, the amount discharged would appear inconsistent with the idea of its being all derived from the ingesta.

Again, as to the suggestion of Bernard, that it is in connection with chronic and not acute diseases of the pancreas, that these discharges must occur, an examination of the table will develop inconsistent facts. In the first place, the very brief duration of the phenomenon, in some instances from one day to three weeks, would indicate, if any disease of the pancreas at all, one of very ephemeral duration and minor consequence, forbidding the idea of chronicity or severity.

Again, the complete re-establishment of health, with the entire disappearance of the oily discharge in several instances, would seem also to militate against the "chronic" judgment, especially if under that designation the disorder must be supposed to be malignant and incurable.

Further, the occurrence of several cases of disordered pancreas, unattended with the oily or fatty discharge, and the presence of it in several cases in which no disease of that organ existed (which occurred to Dr. Bright, who at first maintained the connection of this symptom with disease in that locality) would seem sufficient to dispel, emphatically, the idea of a necessary connection between the disease and the symptom.

Without pursuing this line of reflection further, it may be remarked that the attendant symptom most common in these cases is, *deficiency of bile*. Either jaundice or clay-colored stools, or both, appear in a majority of instances.

As the sum of the matter, derived from the consideration of the reported cases, diarrhœa adiposa appears to be associated with a great variety of conditions of body, differing considerably from each other, and it sometimes appears to be unconnected with any other very marked evidence of disorder of the general system, or of any of its parts. In the last case reported, the interesting fact of the amount of oil evacuated being controlled by the exhibition of a moderate amount of alcoholic stimulus, would seem to indicate that the producing lesion was somewhere in the assimilating function; but, admitting this, the question is still unanswered, as to the precise organ or part of the function involved.

The marked ability evinced by the author of the original essay

on *Cholestérine*,¹ in the *American Journal of Medical Sciences* for October, 1862, which itself places American reputation for physiological knowledge, and ingenuity, and skill in research on a par with any held abroad, affords an earnest hope that the arcana of the digestive functions will not much longer remain such.

The specimen of the oily discharge herewith exhibited, presents under the microscope, pure oil globules, without any appearance of cholestérine or other animal products. Its combustibility is demonstrated by the burning of the taper made of it, and its saponifiable property by the small cake of soap prepared with it.

Respectfully submitted,

JOHN H. GRISCOM.

¹ Austin Flint Jr., M. D.

REPORT

ON

AMERICAN MEDICAL NECROLOGY.

BY

CHRISTOPHER C. COX,

SURGEON UNITED STATES VOLUNTEERS.

REPORT ON AMERICAN MEDICAL NECROLOGY.

THE unfortunate national events which gave rise to a suspension of the annual sessions of the American Medical Association, also materially interrupted the labors of the Committee on Necrology. The meeting at Chicago found little accomplished in the form of a report, and hence none was offered. It was determined, however, that the chairman should collate such biographical memoranda as might be available for publication in the *Transactions* of '63; and to assist in this object, one medical gentleman from each State represented, was appointed to co-operate in the preparation of the report. It is to be regretted that only a few of the members of the Committee have responded to the earnest appeal for information in reference to deceased physicians in their respective localities. To Dr. E. S. F. Arnold, of New York; Dr. S. G. Hubbard, of Connecticut; Dr. W. Pierson, Jr., of New Jersey; Dr. William Mayburry, of Pennsylvania; Dr. James Cooper, of Delaware; Dr. W. B. Fletcher, of Indiana; Dr. John C. Huff, of Virginia; Dr. Prince, of Illinois; Dr. C. A. Logan, of Kansas; Surgeon General Hammond, of the Army, and Dr. Horwitz, of the Naval Bureau, acknowledgments are due for the prompt and satisfactory manner in which they have furnished aid to the Committee. From many of the States represented in the Association, in which deaths of eminent men have doubtless occurred since the New Haven meeting, we have been able to glean nothing for this essay, while all sources of information in that large part of the country in arms against the government have been of course sealed from observation.

CONNECTICUT.

ELI IVES, M. D., was born in New Haven, Ct., on February 7th, 1779, and was the son of Levi Ives, himself a physician of

eminent ability and extensive practice. He entered the Freshman class at Yale College, in 1795, and was graduated four years from that time. After graduation he taught a grammar school, at the same time pursuing his medical studies. These were prosecuted chiefly in the offices of his father and the distinguished Dr. Æneas Munson.

His practice commenced in 1801, and continued for nearly half a century, at the end of which period he gradually retired from the labors of a profession to which he had devoted, for so many years, the best energies of mind and body. Few men have enjoyed a larger share of public confidence, especially in cases of consultation. As a physician he was quick and accurate in his perceptions, rendering him an accomplished diagnostician; and having ascertained the malady, his medical resources were ample, and always promptly applied to the successive phases of the disease under treatment. Cautious where caution was demanded, he was bold, energetic, and decisive where the exigency required prompt and fearless proceeding.

Dr. Ives was a laborious student, and his attainments in medicine and the cognate sciences were extensive and thorough. In connection with the venerable Professor Silliman, he founded the Medical Department of Yale College, and was one of its professors from the foundation of that institution, until old age forced him to lay aside the duties of public teaching. He filled for sixteen years the chair of *Materia Medica*, with great acceptance, when, upon the death of Nathan Smith, he was transferred to that of *Theory and Practice*.

He was the subject of many honorary distinctions both at home and from European societies and colleges, but we are told that "he never attached them to his name; and with the characteristic aversion to the publication of his own honors, he put them where those who were disposed thus to grace his name could not find them; and they cannot now be found by any of his surviving relatives or friends." The latest and crowning honor of his long life was that of being elected President of the American Medical Association, at its New Haven session. Those who witnessed his venerable form and feeble gait on that occasion, felt that they had looked upon the face and heard the tones of the Patriarch of the Profession for the last time. He died in New Haven, on October 8th, 1861, in the eighty-third year of his age.

"There is no object so beautiful," observes his excellent and

distinguished pastor, "to a thoughtful and reverent mind as an aged Christian, of eminent attainments and usefulness; for our memory and faith associate with his presence and his face his present and his future. There shines ever upon his hoary head and his reverend countenance, a double radiance—the radiance from his long life of righteousness, beneficence and love, and the radiance from the purity and glory of his approaching celestial home."

CHARLES HOOKER, M. D., was born in Berlin, Ct., March 22d, 1799, and died at his residence, in New Haven, March 19th, 1863, in the 64th year of his age.

His father was a respectable farmer, and a descendant of Rev. Thomas Hooker, one of the first and most prominent settlers of Hartford, Ct. His early studies were pursued in his native town, and for a time in Hartford, under the direction of Rev. A. Flint, D. D., in whose family he resided, and for whom he always entertained the greatest affection and respect.

He joined the Freshman class in Yale College in 1816, and graduated with honor in 1820. He pursued the study of medicine principally in New Haven with the late Eli Ives, M. D., and in the Medical Institute of Yale College, from which he received the degree of Doctor of Medicine and Surgery in 1823.

Immediately after graduating he commenced the practice of his profession in New Haven, Ct., and continued it for about forty years, until his death. At first, business came to him slowly, as to most young physicians; but after a few years it rapidly increased, so that his time both by day and night was fully occupied, and at the time of his death he had probably visited and prescribed for more patients than any other physician in the city. His practice was not confined to the city, but he was largely called abroad in consultation by physicians and their patients, who desired to avail themselves of his experience and skill.

In 1838, Dr. Hooker was appointed Professor of Anatomy and Physiology in Yale College, and held the situation until his death. His lectures on this interesting branch of medical science were always minute and accurate, without any attempt at display, and were regarded by those who attended them, as in a high degree useful and practical.

He took a deep interest in all those associations which have been formed for the promotion of medical science. As a member of the

City Medical Association, of the Connecticut State Medical Society, and of the American Medical Association, he was a constant attendant upon their meetings, and engaged actively in promoting their objects. From the organization of the Hospital Society of Connecticut, he was a member of the Board of Directors, and for more than twenty years was one of the attending surgeons. In this institution he was always interested, affording, as it did, scope to his kind feelings and professional skill in behalf of the sick and suffering, and often the indigent, who without it would have been left to suffering and to death.

As a surgeon, an accurate knowledge of anatomy, a steady hand, and a cool courageous mind, enabled him to operate skilfully and successfully. He had been called upon to perform nearly all the larger surgical operations, and during the last year of his life, he had operated for stone in the bladder in four cases, three of which were successful.

The traits of character which fitted Dr. Hooker for the successful performance of his professional duties were many of them striking and obvious. He was a minute, diligent, and persevering observer of facts. This habit of careful observation was cultivated and strengthened in early life by the study of Botany and other branches of natural history, for a knowledge of which accurate observation is essential. In many of these, especially in botany, he was a proficient.

He had an accurate, and retentive memory, treasuring up whatever he had observed, not only in general but with great minuteness. He exercised also entire honesty and judgment in determining the bearing of the facts which he had observed, or had derived from others, upon diseases and the best method of treating them. He indulged in no splendid theories, often born of the imagination, by which the mind is overshadowed and the observation of facts obscured.

The habit of his mind was to collect and arrange facts and upon these found his notions of diseases and their remedies, rather than to derive them from any large general views of medical principles. In the investigation of some favorite topic he often spent years before arriving at a satisfactory conclusion upon it, or in fortifying his opinions by new and often repeated observations. It will not be thought strange, therefore, that the opinions which he formed after such a process should be held with great tenacity, or that he should at times see effects from his remedies, which were not

always so obvious to others. In holding his opinions strongly, he was tolerant of the opinions of others; and he was never offended, nor was his good nature disturbed when his favorite notions were controverted.

Dr. Hooker had great confidence in the power of medicines over disease, and was therefore always hopeful of the result of active and judicious treatment; acting upon this belief he persevered in the treatment of the sick, after they were, in the view of others, in a hopeless state, and thus, at times, saved the lives especially of those who were suffering under acute disease, who would otherwise have died.

His patients were inspired with the hope, which he himself felt, and which was impressed more strongly upon them by the cheerful buoyant spirit which he manifested.

Whatever of trouble, care, or anxiety he might feel elsewhere, found no expression, either in his countenance, or in his words in the chamber of the sick. This hopeful cheerfulness aided largely the beneficial effects of the remedies employed, and at least mitigated the pangs of disease, while his kindness insured him the affection of his patients and their friends.

Dr. Hooker loved his profession and gave to it all the energies of his body and mind. He seemed to rejoice in the care and labor which it brought upon him, and never appeared more happy than when bearing a load of care and labor, under which most men would have sunk in spirit, if not in body.

As he loved his profession, so he was assiduous in performing all its duties, especially towards his patients, and that without regard to their position in life, or the probability of pecuniary reward.

Dr. Hooker wrote but little for publication, and all of his essays were published in the medical journals of the day. Of these, two deserve to be mentioned as displaying original, diligent, and persevering observation, and as tending to important practical results.

One, published in the *Boston Medical and Surgical Journal* for 1847, teaches and illustrates the method of investigating diseases of the alimentary canal by auscultation, upon the same general plan as that so long and successfully employed in regard to the thoracic viscera. Another on "the diet of the sick," a report made to the American Medical Association and published in the volume of *Transactions* for 1835, advocates with great force and

ingenuity the propriety of the use of a more liberal and nutritious diet for the sick, especially such as are laboring under fevers of a typhoid character, and contains many rules for its judicious administration. Both of these essays are well deserving the attention of physicians.

Dr. Hooker continued his professional labors with his usual activity and zeal, until eight days before his death. For a week or two previous, he had almost daily visited patients at a distance during the very inclement weather which prevailed. Wednesday, March 11th, he rode ten miles into the country, and on his return complained of great fatigue and exhaustion, remarking to a neighbor, to whose child he paid his last visit, that he was going home to be sick. From this time his disease, congestion of the lungs, advanced slowly and almost imperceptibly at first, but afterwards with fearful rapidity until its fatal termination.

"Thus passed away," remarks his colleague, Dr. Jonathan Knight, to whom I am indebted for the preceding sketch, "apparently in the midst of his usefulness; his faculties both of body and mind unbroken by disease, and undimmed by the infirmities of age; this eminent and successful physician, beloved for his kindness and benevolence, honored for his high integrity; his memory is embalmed in the hearts of thousands who have experienced his sympathy and skill."

NEW YORK.

For the following sketches of the deceased physicians and surgeons of New York, I am obliged to Dr. Samuel S. F. Arnold, of Yonkers, N. Y., whose promptness and industry in collecting and arranging this part of the report, are entitled to grateful mention.

CHARLES E. ISAACS, M. D., died in Brooklyn, N. Y., June 16, 1860. Dr. Isaacs was born at Bedford, Westchester Co., June 24, 1811. At twelve, we are told that he read the Greek Testament with facility, and at an early age he delighted in collecting specimens from the animal, vegetable, and mineral kingdoms. These tastes were fortunately indulged. Selecting medicine as a profession, he studied with Dr. Belcher, of New York, graduated at the University of Maryland in 1832; was subsequently appointed surgeon, during General Jackson's administration, to accompany the Cherokee Indians in their removal beyond the Mississippi, and

travelled quite extensively among the Indian tribes, and through the Southern States. He entered the army in 1841, being first among the six who passed, out of fifty candidates. After acting with credit on various stations, he obtained leave of absence in 1846, about that time resigned, and in connection with a friend, established a medical class in Greene St., N. Y. At the end of a year he left, went to Niagara Co., there again embarked in private practice, apparently without success, as in another year we find him again in New York, and becoming attached to the hospitals on Staten Island. Subsequently he was made Demonstrator of Anatomy in the College of Physicians and Surgeons of New York, which post he held for several years, and still later became attached to the New York University Medical College in the same capacity. During the warm seasons he was employed on various European steamers, and visited the hospitals of Paris and other foreign cities. In 1856, now in his forty-sixth year, he went to Brooklyn, and at once obtained a wide and lucrative medical practice, which he had enjoyed, however, for the short period of three years only, when death removed him from the scene of his usefulness.

It has been said that talent and industry will always command success in any pursuit. The career of the late lamented Isaacs, as with many others in our profession, shows how little the masses are to be relied on, for an appreciation of those who scorn and cast aside the petty artifices by which men of inferior merit often command early success. With a good presence and address, winning manners, wit, and knowledge of men and things, as well as genial disposition, an ardent love and thorough knowledge of his profession and of the collateral sciences—possessing in fact every requisite to command success, Dr. Isaacs, after having passed the meridian of life, succeeded, at least in the ordinary and pecuniary sense, only in time to thoroughly convince the public of the great and irreparable loss sustained in his removal from among them. Dr. Isaacs was an excellent anatomist, and was fond of investigations in physiology and pathology, as exhibited in his monograph on the structure and functions of the kidney (See *Trans. N. Y. Acad. of Med.*); an article highly commended both at home and abroad. His death was due to an attack of pleuro-pneumonia, although he had previously been affected with various disorders, of which the groundwork had been laid by early exposure in malarious climates. Few men have died more honored and beloved

by the profession, as well as by those with whom he came in contact. (See *Amer. Med. Times*, vol. i.)

ROBERT RAY, JR., M. D., ob. July 3, 1860. Dr. Ray was an Alumnus of Columbia College, N. Y., and graduate of the College of Physicians and Surgeons. He entered the service of the New York Hospital, and after finishing his term as House Surgeon, was appointed Curator of the Hospital Museum. He was a young man of fine endowments, and untiring industry in his profession. His inaugural thesis on "Hospital Gangrene" was requested for publication, and he prepared a catalogue of the Museum, which will long be valued as a memento of his industry and professional ardor. His early death was much lamented.

BEZIN REECE MASTERS, M. D., of New York, died Sept. 17, 1860. He graduated with honor about 1848, at the College of Physicians and Surgeons, and after ample experience in the public hospitals, became Surgeon-in-chief of the Panama Railroad Co. After a few years he settled in New York, where he practised successfully until the commencement of the above year, when ill health from disease of the liver compelled him to relinquish business. He went to Bermuda for a while, then returned home only to die. He is described as one "possessing that discriminating judgment, which, aided by an unusual store of information obtained by thorough preliminary study and extensive hospital experience, made him correct in diagnosis, and rich in therapeutical knowledge. He was a man of unquestioned integrity, and much beloved and respected." (See *Amer. Med. Times*, vol. ii.)

CASPAR VAN WIE BURTON, M. D., of Lansingburg, N. Y. Died 23d Sept. 1860.—Born in Albany in 1810. He received a superior education from an English tutor, and at seventeen went to learn the business of bookbinding. Subsequently removing to Troy, he entered as well into publishing, and became also editorially connected with the *Troy Morning Mail*. His attention having been directed to medicine, he became a pupil of the accomplished Dr. Thomas Brinsmade, graduated as M. D. at the age of 32 in the Albany Medical College, and subsequently settled in Lansingburg, where he labored successfully for nearly seventeen years. He was an ardent lover of the natural sciences and of literature, zealously

cultivated comparative anatomy and physiology, also taxidermy, and formed and arranged a valuable collection of birds and animals. At the Lansingburg Female Seminary he lectured on Physiology and Hygiene, and has left about 150 manuscript lectures. In addition to his inaugural thesis on "Dissecting Wounds, their Nature and Treatment," he contributed a monograph on "False Aneurism" to the *Cincinnati Med. Observer* for April, 1856, and another on "the Use of Iodide of Potassium in Hydrocephalus, illustrated by five cases," in the *American Medical Monthly* for April, 1857. In 1856, Dr. Burton delivered an address before the Alumni of the Albany Med. College on "the Character of the Faithful Medical Man," in which he says: "There is no incompatibility between professional fidelity and Christian candor; with one, the physician should begin to practice, with the other he should certainly close. The soothing influence of religious sentiment is no mean assistant to the prescription, nor to the operation of medicine; nor, if example is required to enforce so evident a course, are there wanting many noble instances in the highest walks of the profession." Dr. Burton was made M. A. by the Rochester University in 1853, was President of the Rensselaer Co. Med. Soc., in 1857, in which year he also became a permanent member of the Medical Society of the State of N. Y. In 1853 he became a corresponding vaccinator of the London Vaccine establishment, and in 1857, was made an honorary member of the New York Chirurgical Society. He died from the effects of the poison of diphtheria, then prevailing extensively in Lansingburg, as above stated Sept. 23, 1860. His character is thus summed up in a resolution of the Rensselaer Co. Med. Society: "Energy, activity, industry, honorable feeling and bearing in his intercourse with physicians, untiring devotion to the interests of the sick intrusted to his care, constituted the leading characteristics of his professional life; courtesy, cheerfulness, kindness and affection, which he manifested in private, social, and domestic life, won for him numerous and warm friends, who now sincerely deplore his death." (See Memoir by Dr. S. Willard, Treasurer of N. Y. State Med. Soc., 1861.)

JOHN C. COVIL, M.D., who died in New York City Nov. 4th, 1860, aged 52, was a Fellow of the New York Academy of Medicine, and had been, since 1847, physician to the City Prison. He was a worthy man, a good physician, and a faithful public officer.

RICHARD K. HOFFMAN, M. D., who died in New York November, 1860, aged 70, was also a talented and much esteemed physician. He was formerly connected with the New York Hospital.

JOHN WAKEFIELD FRANCIS, M. D., LL. D. Died February 8th, 1861. The biography of this eminent man having been widely circulated in the medical journals, as well as in the *American Cyclopædia*, and public press generally, a comparatively brief notice may suffice here. He was born in New York City, Nov. 17th, 1789, of German parentage on the father's side, of Swiss on the mother's. Inheriting from the latter a love of books and of literature, he was at first apprenticed to a printer, but this not sufficiently gratifying his thirst for knowledge, this was soon abandoned, and after pursuing a course of preliminary studies he entered an advanced class of Columbia College, where at twenty he graduated as A. B. in 1809. Having determined to follow the practice of medicine, he commenced his studies with Dr. Hosack, with whom he afterwards became associated. He was one of eight constituting the first class of graduates of the College of Physicians and Surgeons, who took the degree of M. D. in 1811. In 1813, at the age of twenty-four, he was appointed Lecturer on the Institutes of Medicine and Materia Medica in the College of Physicians and Surgeons, and from this period until his career as a lecturer finally closed in 1830, on the discontinuance of the Rutgers Medical College, to which he became attached in 1826, he filled chairs successively in almost every department. His industry was extraordinary. About 1814 he visited Europe, where, besides making himself acquainted with the most valuable features of the medical institutions, he became acquainted with such men as Cuvier, Gall, Denon, Dupuytren, Gregory, Playfair, Brewster, Bell, the Duncans, Jameson, Abernethy, the Aikins, Sir Walter Scott, Rees (to whose *Cyclopædia* he contributed the articles "New York" and "Dr. Rush") and others. From 1830 until the time of his decease no practitioner held a more honored position than Dr. Francis. We find him among the founders of the New York Academy of Medicine in 1847, and in 1848 its President. In this institution he delivered many excellent addresses. He was early identified with the Bellevue Hospital, and for many years was President of the Medical Board; he was also a great friend of the Woman's Hospital, and a few days before his death was appointed President of the Inebriate's Asylum, the foundation stone of which he assisted

in laying, and in which he took a deep interest, as indeed he did in every charitable and good work. His writings are exceedingly numerous, including Biography and delineations of early New Yorkers, contributions to medical periodicals, and addresses before learned bodies. In 1810 he commenced, in connection with Dr. Hosack, the *American Medical and Philosophical Register*, a quarterly, which lasted four years. In 1822, in connection with Drs. Beck and Dyckman, he established the *New York Medical and Physical Journal*, with which he remained connected for three years. A pretty full list of his writings will be found in Appleton's *American Cyclopædia*.

Among his personal friends he numbered the most distinguished of his contemporaries during the last half century, of whom his house in Bond Street was a resort, including Clinton, Webster, John Pintard, Fulton, Cadwallader, and Colden, and of a later day Bryant and Tuckerman, Hobart and Hawks, Irving and Cooper, Cook and Kean, and others eminent in various departments. Warm-hearted and enthusiastic, genial and kindly, he won all hearts. His own conversational powers were of a very high order, and his addresses and speeches were peculiarly happy. "As a physician," to quote from the eloquent eulogy of Dr. Mott, "he was in the sick room kind and affectionate, but less affable than some others. The soft footstep and kind word, with which he approached the bedside, were admirable, and at once secured confidence. In consultation he threw such a flood of light upon a case as at once to secure the admiration of his associates. He seemed in fact a living library, a walking cyclopedia of knowledge. His opinion was sometimes given with formality, but it was with no more than he believed due to his high office." He was emphatically the poor man's physician, and his liberality was without stint. To the Historical Society he contributed at various times over eight thousand dollars.

In physique, Dr. Francis was somewhat below the medium height, square framed, with broad massive head surrounded by a large mass of white hair, and when out in his broad brimmed low crowned hat, with his gold spectacles, gold-headed cane, and white cravat, he presented a noble specimen of the gentleman of the old school as it is called—a lingering type of a past generation. He died of carbuncle, Feb. 8, 1861, in the 72d year of his age. His funeral was attended by a large concourse of people of all classes,

who mingled together to pay the last tribute of respect alike to the physician and philanthropist, the author and the man.

DANIEL T. JONES, M. D., of Baldwinsville, N. Y. Died March 29, 1861. He was born at Coventry, Connecticut, Aug. 17, 1801. He did not enjoy the advantage of an early classical education, but was brought up to agricultural pursuits. At the age of twenty-one, he began to study medicine with his father's physician, Dr. Fuller, attended in 1826 a course of medical lectures at the New Haven Medical College, and appears to have spent some time in the office of Dr. Eli Ives. Having been licensed to practice by the Medical Society of the State of Connecticut, he ultimately settled in Baldwinsville, Onondaga Co., N. Y. In 1850, and again in 1852 he was elected to represent his district in Congress. He also received the honorary degree of M. D. from Geneva Medical College. He was for thirty-four years a member of the Onondaga Co. Medical Society, and served in several official positions, including that of President. He also served four years as delegate to the State Medical Society of New York, being made a permanent member at the end of his term in 1850. In 1859 he was elected its Vice-President, and in 1860, President. His address in that capacity, in 1861, was noticed in very complimentary terms by the *American Medical Times*. Within two months after he was no more, dying on the 29th of March, of a fever of a typhoid type, in his 60th year.

As a physician and surgeon he loved his profession, and kept himself well-informed in the progress of medical science, was remarkable for punctual, prompt, and faithful attendance on those under his professional care, and stood pre-eminent in that section of the country in which he resided, for professional skill and sound judgment. In his intercourse with his professional brethren, he was at all times kind, honorable, and gentlemanly, while as a citizen he was held equally in high esteem. Whatever tended in his judgment to promote the good order and welfare of society, found in him a warm and efficient supporter, while his professional services were as freely rendered to the poorer as to the wealthier classes. (See Memoir in the *Trans.* of N. Y. State Med. Soc., for 1861.)

EZRA JAMES FOUNTAIN, M. D., who died March 29, 1861, though practising in a sister State, is entitled to be recorded among New

York physicians. A son of Dr. James Fountain, he was born in Westchester Co., Feb. 25, 1828. In 1847, he graduated at Princeton College, N. J., and in 1851, as M. D. at the College of Physicians and Surgeons in New York. Soon after graduating he entered Bellevue Hospital, and within a few months was appointed surgeon of the Panama Railroad. He returned after a year, having suffered much from the effects of the climate, and opened an office in New York City; subsequently, however, went back to the Isthmus, and resumed his duties there until 1854, when he finally retired, and settled in Davenport, Iowa, in partnership with his friend and companion on the Isthmus, Dr. Adler. It was on the Isthmus he first observed the happy effects of chlorate of potash in mercurial salivation, and in other cases, four years earlier than its employment by Mr. Herpin. His success in practice was great, and he was deservedly esteemed. His ability and his diligence are alike shown by the many papers he published of late years in the journals, and of which a list will be found in the *Amer. Med. Times*, vol. ii. p. 245, from which the above particulars are taken. The most interesting, of course, are those connected with the medical properties and therapeutic effects of chlorate of potash. His death resulted from a large over-dose of this drug administered by himself in the belief of its perfect innocuousness, after a week's sickness, on the 29th of March, 1861.

RICHARD PENNELL, M. D., a Fellow of the New York Academy of Medicine. Died in New York, April 11, 1861. I have here to regret that with this and other esteemed deceased members of the Academy, owing to the shortness of time allowed for this report, to the Academy not being in session, and to the urgency of professional duties, I have been unable to collect further particulars.

MERIT H. CASH, M. D., of Wawanda, Orange Co. Died April 26, 1861. Dr. Cash was born July 20, 1802, and passed his early life on a farm. At seventeen he became a teacher, subsequently however determined to practice medicine, and after preliminary studies, and attending medical lectures at the College of Physicians and Surgeons, N. Y., during the session of 1824-25, he became a licentiate in medicine from the Med. Society of N. Y. State in 1825, and settled in his native town, where he at once achieved great success and reputation. He excelled particularly in midwifery,

and his counsel was sought in difficult cases over a wide extent of country. He was always interested in the political questions of the day, and represented his district in the State Assembly in 1834, '35, and '37, being each year on the Committee of Ways and Means, and Chairman of it in 1837. The bills for incorporating the Albany Medical College, and the Young Men's Association for Mutual Improvement were fostered by him, and he subsequently continued to take a lively interest in them. Dr. Cash was President of the Orange Co. Med. Society, and after being a delegate became a member of N. Y. State Med. Society in 1845, upon recommendation of which in 1859 the Regents of the University bestowed on him the honorary degree of Doctor of Medicine. Dr. Cash died on the 26th of April, 1861, in his fifty-ninth year, bequeathing to the State Med. Society the sum of five hundred dollars, the interest of which it has been determined to use as a prize under the name of the Merit Cash prize, the first to be awarded in 1862, for the best essay on the following subject: "How complete is the protection of vaccination, and what are the dangers of communicating other diseases with the vaccinia?" Dr. Cash was sincerely devoted to the interests of his profession, bitterly opposed to quacks and quackery of every denomination, and rigidly exact and inflexible when he had determined he was right. (See Memoir by Dr. Willard, in *Trans. of State Med. Society*, 1862.)

DAVID MEREDITH REESE, M. D., LL. D. Obiit May 13, 1861. Dr. Reese was born in Maryland about 1800, and graduated at the University of Maryland in 1819. He practised there for awhile, and became Professor of the Institutes of Medicine and Surgery, and Medical Jurisprudence in the Washington University of Baltimore. At a later period he became attached to the Albany Medical College, N. Y., and the Castleton College in Vermont, finally, however, settled in New York, where he was for several years resident physician to Bellevue Hospital. In 1830, he brought out a new edition of Cooper's *Surgical Dictionary*, to which he added many useful notes relating to American surgery. He was one of the original Fellows of the N. Y. Academy of Medicine, and drafted its Constitution. He was also elected second Vice-President of the American Med. Association, held at Nashville, Tenn., in 1857. During the last years of his life he edited the *American Medical Gazette*, a New York monthly, the existence of which terminated with his death. In 1860 he was appointed Prof. of Practice of

Medicine in the New York Medical College. The *Medical Times* thus sums up his merits: "Dr. Reese was widely known not only in medicine, but in politics, religion, &c. He wielded a rapid and vigorous pen, but he was not happy in the choice of subjects, nor in his manner of treating them, his arguments being too often specious, his style inflated, and his illustrations inapt. His want of discrimination as to the character and motives of men brought him frequently into collision with his medical brethren, and nullified his influence. His reports to the American Medical Association, including that on Medical Education, are among his best papers." (See *Amer. Med. Times*, vol. ii. p. 326, where will also be found a long list of his published works.)

MICHAEL E. FOY, M. D. Obiit June 9, 1861. A Fellow of the New York Academy of Medicine.

WM. W. DWIGHT, M. D. Obiit July 11, 1861. A Fellow of the New York Academy of Medicine.

ROBERT DOUGLAS, M. D. Obiit July 25, 1861. Fellow of the New York Academy of Medicine.

RICHARD S. KISSAM, A. M., M. D. Obiit Nov. 28, 1861. A son of the great lithotomist, he was born in New York City, Oct. 2, 1808. After an excellent classical and scientific education he graduated in 1830 at the New York College of Physicians and Surgeons, having previously, in 1828, become associated with Dr. Todd, physician of the "Retreat of the Insane." He practised for some years in Hartford Conn., where he founded an Eye and Ear Infirmary, and became also town physician. In 1834 he removed to New York City, and at once entered into a large and remunerative practice. He performed the operation of transplantation of the cornea in 1838 (*New York Journ. of Med.*, March, 1844), and published a successful "Nurse's Manual." During 1844 and '45, Dr. Kissam instructed many students in surgery and anatomy, with demonstrations and dissections. In 1850 he received the degree of A. M. from Trinity College, Hartford; in 1847 he was appointed Examiner and Medical Counsellor of the Connecticut Mutual Life Ins. Co. He also went as a delegate from the New York Academy of Medicine, of which he was one of the most esteemed Fellows, to the National Med. Association in Philadelphia. On the 22d of

November, 1861, Dr. Kissam was attacked with pneumonia, and sank on the 28th of the same month. Dignified yet unostentatious, and of the most prepossessing manners, refined and gentlemanly, scrupulously neat, with a brilliant and sparkling eye, fascinating by his wit and humor in ordinary conversation, or drawing upon the more scientific treasures of his highly cultivated mind as occasion required, the doctor was one of the most admired men of the profession, to which he was always ardently devoted. Nor was he less devoted to his home and to his friends. He was a highly successful practitioner and a Christian gentleman, and his loss was both widely and deeply felt. (See Memoir by Dr. Samuel W. Francis, *Amer. Med. Times*, vol. iii. p. 394.)

EDSON CARR, M. D., of Canandaigua, Ontario Co., N. Y. Obiit Nov. 28, 1861. Dr. Carr was born in Vershire, Orange Co., Vermont, Oct. 29, 1801. With such education as the common schools of New England afforded, he became a resident of Ontario Co., N. Y., in 1819, worked his way by teaching school, and was for a time in a drug store. Having studied medicine with Dr. Wells, of Canandaigua, he attended a course of lectures in Boston, and was licensed to practice by the Medical Society of Ontario Co. in 1826. In 1855 the honorary degree of M. D. was conferred on him by the Medical College of Geneva, and the same was awarded by the Regents of the University of New York. For thirty-five years he was connected with the Medical Society of Ontario Co., of which he was several times President, and was elected a permanent member of the State Medical Society in 1855. He was from first to last a hard student, and in the early part of his practice prepared many skilful dissections now in the medical school at Ann Arbor. In 1846, he published an article in the *New York Journ. of Med.*, "Cases of Encephaloid Disease," also an article on "Diseases of the Colon," and in the *American Journal of Medical Sciences* for Oct. 1842, a "Paper on the Crepitant Rale." In 1851 he was for the first time in his life prostrated by sickness, having contracted a fever while attending the American Medical Association, of which he was a permanent member and regular attendant. He never recovered his former strength. He died Nov. 28, 1861. Dr. Carr always held a high place in the esteem both of the profession and the public, and while an advocate of scientific progress, he abhorred dissimulation and charlatanism. To the young men of the profession he ever gave, not only words of encouragement, but acts of

kindness and assistance. (See Memoir by Dr. George Cook, *Trans. of N. Y. State Med. Soc.* for 1862.)

STEPHEN GRISWOLD, M. D. Obiit Nov. 30, 1861. He was a reputable practitioner of New York City, long connected with the Northern Dispensary, and one of the founders of the Abingdon Square Library Association. Having entered the army as assistant surgeon of volunteers, he was taken prisoner at the first battle of Bull Run, and fell a victim to typhoid fever, in the common jail at Charleston, S. C.

ABRAHAM VALENTINE WILLIAMS, M. D., of Bloomingdale, N. Y. Obiit Feb. 28, 1862. He was born on what is known as the Horton farm, in the vicinity of Yonkers, Westchester Co.; attended Dr. Hosack's lectures; graduated in the New York University, and in 1824 became resident physician at the Bloomingdale Lunatic Asylum, where he remained until 1825. After his marriage, he determined to settle in the locality, and soon obtained an extensive practice, rendering his services to the poor as freely as to the rich. To the former he willingly gave his services gratuitously; and, although peculiarly reticent in speaking of himself, once observed to a friend, that if he had, in his long career, booked his visits to the poor, the sum would probably reach fifty thousand dollars. He was for many years a physician of the Bellevue Hospital, and labored incessantly to bring it to its present efficient condition. He was also one of the Board of Education; one of the Trustees of the Astor Library, and, for more than twenty years, a warm friend and patron as well as physician of the Orphans' Asylum, in all of which positions he was an active worker. At one period of his life he was also in the Common Council of New York, where he likewise took an active interest in every good and useful movement. Foreseeing the great importance of keeping the navigation of the Haarlem River free, he was an ardent advocate of the High Bridge, the construction of which met with a bitter opposition. A committee was ultimately appointed, of which Dr. Williams was made chairman, and he carried his point, being in this matter, as he afterwards observed, a quarter of a century at least ahead of his time; for who doubts its utility now? He had also some share in originating the Central Park. If he could not be called a great man, he was unquestionably an eminently good, eminently active, eminently practical, and useful one. Gifted with fine talents,

which he had assiduously improved and cultivated, he devoted them with entire self-abnegation to the welfare of his fellow-men wherever he could make them available. As a physician he long held, both in the estimation of the public and of his professional brethren, a position in the foremost rank of New York practitioners, and sadly and heavily indeed did the news fall upon both, when, after long devotion to the duties of his profession, he succumbed to an attack of pleuro-pneumonia on the 28th of February, 1862, at the age of 60 years. He was indeed, as the *Med. Times* observes, "the beloved physician," and the void he left will not easily be filled. In the eloquent tribute "In Memoriam" by Dr. Valentine Mott, whose intimate friend and family physician he was in Bloomingdale, Dr. Mott observes: "For more than forty years he quietly and unobtrusively discharged his professional duties in the neighborhood of the metropolis. To the requirements of a practice essentially rural, he carried a judgment as calm and clear, and a discretion as large and sound as falls to the lot of the most distinguished urban physician. To these he added such genial manners, and so much unfeigned kindness of heart, that had Providence cast his lot in the more thriftily populated portion of the city, his success must have been unprecedented. In the chamber of sickness his presence was enlivening as the morning sun."

WILLIAM MURRAY, M.D., of New York. Obiit March, 1862. He was a graduate of Edinburgh, was for thirteen years visiting and more latterly consulting physician of St. Vincent's Hospital. He was an able physician and much respected.

HON. JOHN MILLER, M.D., of Truxton, Cortlandt Co., N. Y. Obiit March 30th, 1862. Like many other country physicians, Dr. Miller's early life was spent on a farm, and his advantages were few. His physical training, however, was of advantage to him as a preparation for the arduous duties of after life. He was born in the town of Armenia, Dutchess Co., N. Y., Nov. 10th, 1774. In 1793 he commenced the study of medicine with an uncle, at a later period attended the lectures of Drs. Rush and Shippen in Philadelphia, was licensed to practise medicine by the Vermont Medical Society in 1800, and finally settled as above in 1801. The country being new, the roads poor always, sometimes almost impassable, he there performed an almost incredible amount of labor, frequently riding on horseback from thirty to fifty miles a

day without regard to storm or sunshine, and equally indifferent as to whether his patient could afford to remunerate him or not. After thirty years' practice he retired, and again devoted himself to agriculture. He was one of the founders of the Cortlandt County Medical Society in 1808, and its first Vice-President, and was elected an honorary member of the State Medical Society in 1808, the semi-centennial anniversary of which in 1857 he attended by special invitation. He entered with equal ardor into public affairs, and we find him filling successively numerous public appointments, as Coroner, Postmaster, Justice of the Peace, Judge of County Court, member of Assembly and member of Congress. As a practitioner, his biographer observes: "Dr. Miller possessed to an eminent degree the confidence of his employers. His strong mind and retentive memory enabled him readily to discriminate phases of disease, and his promptitude and readiness in the administration of relief to the sufferer at once, secured the confidence of the sick. He loved his profession, and while attending to its duties, amidst all its incessant labors, he found time to cultivate his mind by reading much of the current literature of the day, while his well-balanced mind and retentive memory enabled him to make the best use of what he read. In offices of public trust he evinced the same energy, determined will, and promptness of action, while his eminent social qualities and vivacity rendered him not only a welcome guest at all gatherings, but gave him a commanding influence. He was free and frank in manner, generous and friendly in disposition, engaging in address, of active temperament, and indeed possessed all the social qualities of a gentleman, and the stirring energies of the man of business. (See the very interesting Memoir of Dr. Miller by Dr. George W. Bradford, in *Transactions* of New York State Medical Society for 1862.)

JEREMIAH BURRITT PEARCE, M.D., of Lyons, Wayne County, New York. Obiit April 10th, 1862. He was born in the city of Troy about 1790, and after studying in the office of the late Dr. Burritt, of Troy, matriculated at the College of Physicians and Surgeons, New York. After about a year spent there, and passing an examination by the Censors of his district, he received the diploma of the State Society, then located at Skaneateles, Onondaga County, until 1819, when he removed to Lyons, Wayne County, New York, where he practised up to the time of his death. He was an active member of his County Medical Society, by which he

was several times sent as delegate to the State Medical Society, and twice to the National Medical Convention. Dr. Pearce is described as an unusually skilful physician, being sent for far and wide, as a noble specimen of those self-sacrificing men, who, passing their lives in performing the arduous duties of a rural practice, have little time for writing, but nevertheless true lovers of medical science, and keeping well posted in the current medical literature of the day. He is also spoken of as a thoroughly honest man, a moral citizen, a true Christian, and a much esteemed physician. (See *American Medical Times*, vol. iv. p. 240.)

BENJAMIN C. LEVERIDGE, N. Y. City. Obiit April 16, 1862. Fellow of the New York Academy of Medicine.

JOHN C. CHEESMAN, M. D., of New York City. Obiit Oct. 11, 1862. Born about 1787, he was one of the oldest and most prominent medical practitioners of New York. He was, since 1827, a permanent member of the State Medical Society, and a Fellow of the New York Academy of Medicine, for thirty-five years a Trustee of the College of Physicians and Surgeons, and for many years a surgeon of the New York Hospital. Dr. Cheesman was, I believe, of Quaker family, with much of the staid, quiet manner of the sect; of fine presence and dignified bearing, withal, genial, kindly, and truly hospitable. He enjoyed for many years a very large and lucrative practice, and his death might well be considered a public loss. As a physician, he was a man of retentive memory and sound judgment, and as a consulting practitioner remarkable for the extent of his professional resources. He commanded the confidence and affection of his patients to the fullest extent, and was no less esteemed and respected by the entire professional body.

JACOB HARSEN, M. D., of N. Y. City. Obiit Dec. 31, 1862. Another old, highly respected, and talented member of the medical profession in N. Y. City. His merits are best summed up in the following resolution, adopted by the Academy of Medicine: "In his decease the Academy mourns the loss of an honored fellow, and the community of a great public benefactor. Blessed by a kind Providence with the large wealth inherited from his ancestors, he dispensed it with a liberal hand in the promotion of the great interests of science and humanity. To raise the fallen; to succor the wounded and distressed; to minister to the neglected; to visit

the forsaken; to remember the forgotten was the peaceful and pleasant mission of his daily life. His native city will long cherish the memory of one of her most worthy sons, while the remembrance of his distinguished philanthropy, his whole-souled benevolence, his unostentatious charity, will enshrine him in the hearts of the profession, of which he was an honored member."

JOHN MILLER, M. D., N. Y. City. Obiit Jan. 13, 1863. Fellow of the New York Academy of Medicine.

GEORGE H. TUCKER, M. D., of N. Y. City. Obiit Jan. 25, 1863. Fellow of the New York Academy of Medicine.

GEORGE P. CAMMANN, M. D., of N. Y. City. Obiit Feb. 16, 1863, at the age of 59 years. Another old, wealthy, and highly distinguished physician, and Fellow of the Academy of Medicine. In the resolution drawn up by the Committee appointed at a special meeting of the Academy, and consisting of Drs. V. Mott, A. H. Stevens and J. Linsly, they remark of him: "Pursuing his profession for the pure love of it, we believe he had no enemies to disturb his equanimity. Kind and amiable towards all, he was a pattern of integrity and truth. No one knew him but to admire; he was a noble specimen of great integrity and rare worth."

The *Medical Times* observes of him: "Dr. Cammann has published but little, owing to a natural aversion to publicity; he was never seen in any of our societies, and but seldom in any medical circles. Still he was universally regarded as one of the brightest ornaments of the profession. In cardiac and pulmonary diseases he had long been a leading authority."

HENRY NEWTON FISHER, M. D., graduated at the New York University in 1855, and as Doctor of Medicine in 1858, then entered the New York Hospital as Senior Walker. In 1860 he volunteered his services to the Government, and was employed on the Sanitary Commission transports. In Oct. 1862, he became a contract surgeon attached to the Eckington Hospital, Washington, subsequently receiving his commission as Assistant Surgeon U. S. A. Having contracted typhoid fever, he returned home, and died March 16, 1863, in the 29th year of his age. He furnished many good surgical reports of cases to the *Medical Times*, and with a thorough love of his profession, as well as industry and energy in

its prosecution, gave much promise of future distinction. (From *American Med. Times*.)

GEORGE LEWIS, M. D., of N. Y. City. Obiit April 24, 1863. Born at Naugatuck, Connecticut, he attended lectures at the Dartmouth Medical College, graduated in 1851 at the College of Physicians and Surgeons, N. Y., and settled in New York City, where he soon acquired a lucrative business. Threatened with symptoms of phthisis, he determined to try the climate of Minnesota, and wintered there in 1861-62, improving so much, that he determined to settle there, and went in the fall of 1862 for that purpose. He was however subsequently attacked with pleuro-pneumonia, which proved fatal at the age of thirty-nine. The *Med. Times* says of him: "Dr. Lewis was a man of the highest moral tone, a warm and generous friend, and a Christian. He was ardently devoted to his profession, and most attentive to his patients. His contributions to medical literature were few but highly important. In 1857, he published in the *New York Journal of Medicine* a very elaborate article on perforation of the Appendix Vermiformis. During the last year he published in the *American Medical Times*, valuable articles on the climate of Minnesota. His attention having been called to the relations of phthisis to climate, he had commenced a thorough, systematic, and very philosophical study of this subject, and had he lived he would doubtless have produced a valuable work. He had already prepared a preliminary paper which he did not live to revise."

JOHN WATSON, M. D., of New York City. Obiit June 3, 1863. One of New York's most distinguished practitioners. In 1827 he entered the office of Dr. J. M. Smith, was remarkable for his industry and assiduity, and graduated with distinction as M. D. in 1832. In 1833 he was appointed one of the attending physicians of the New York Dispensary, in Centre Street, subsequently, in 1835, visited Great Britain and the Continent with an invalid family, which gave him an excellent opportunity of visiting medical institutions abroad, and of forming valuable acquaintances among distinguished foreign practitioners. He took part in forming the New York Medical and Surgical Society in 1836, in establishing the Broome St. Infirmary in 1837. He assisted also in establishing, and filled the chair of Surgical Pathology, in the Broome St. School of Medicine in 1838. Appointed, in 1838, one of the Surgeons of the New

York Hospital, he first introduced clinical instructions by regular courses of lectures; he also established many reforms in heating and ventilation, remaining in office twenty-four years. In conjunction with Dr. Swett, he established the *New York Medical and Surgical Journal*, a quarterly, which, though ably conducted, only existed for two years. In 1847 he took an active part in organizing the American Medical Association, and also the New York Academy of Medicine. In 1837 Dr. Watson became associated with Dr. A. H. Stevens, and from this period acquired a large and lucrative practice. He was a voluminous writer, and has left behind him a most valuable medical library. He is spoken of as ardent in his attachments, impulsive, and irritable in his temperament, but not vindictive, a skilful practitioner, and judicious counsellor. (See Memoir in *Amer. Med. Times*, vol. vii. p. 42.)

It will be seen that during the period embraced in the above report, New York City has lost many of her most distinguished physicians. Doubtless, too, in remote country districts many have passed away, whose careers are full of interest, and who are well entitled to honorable mention here, settling as they have done, while the scene of their labors had scarcely yet been reclaimed from the wilderness, and proving a blessing to their respective localities, in which their memories will be long cherished. It is to be hoped that the various county societies will not allow these noble-hearted men to be forgotten, that they will collect complete records and place them before the profession at large in an enduring form.

NEW JERSEY.

LOUIS CONDUCT, M. D. Was born at Morristown, N. J., on March 3, 1773, and died in that town May 26, 1862, in the 90th year of his age.

In February, 1794, he graduated in medicine at the venerable University of Pennsylvania, having been previously a student of Dr. Rush. In 1805 he consented to take a seat in the State Legislature, to which he was elected year after year, until 1811, when he was sent to the Congress of the United States. In 1825 he was chosen one of the Trustees of the College of New Jersey. In 1838 he was placed in the State Legislature again. In 1819 he was elected President of the Medical Society of New Jersey. He was also an early and zealous member of the American Medical Association.

His death was the result of a fracture of the femur, which caused long confinement to the room, and produced much constitutional irritation. Full of years and honors, this good man and scientific practitioner passed away "calmly, serenely, and in the possession of his mental faculties."

DR. ABRAHAM SKILLMAN, another prominent physician of New Jersey; was born at Three Mile Run, Somerset Co., March, 1796, and died at Round Brook, in the same county, on Dec. 10, 1862, aged 67 years.

His medical studies were pursued with Dr. Taylor, of New Brunswick, and Dr. Cheesman of New York. His professional career was commenced in June, 1833. In 1843 he was elected President of the Medical Society of New Jersey. "He was a skillful and successful physician, devoted to his profession and enjoying the confidence of those among whom he practised. Those who knew him best, mourn most sincerely his removal from them.

OSCAR J. AKERS, M. D. Died at Newark, after a very brief illness, of diphtheria, on April 9, 1861, in the 40th year of his age. He was "a pleasant, genial companion, and a good physician, possessing an accurate appreciation of the nature and relations of morbid phenomena."

PENNSYLVANIA.

DR. WILLIAM GALLAGHER. Was born in Luzerne Co., Pa., in 1804, and died of cancer of the stomach on December 10, 1860. He was a faithful physician and exemplary citizen. In 1858 he represented the Board of Health of Philadelphia, in the American Medical Association.

DR. ANTRIM FOULKE. Was born in Richland, Bucks Co., Pa., on March 31, 1793. For thirty years he was engaged in a laborious country practice; but removing to Philadelphia in 1848, he entered upon a more extended theatre of professional success and reputation in that city.

His chief characteristics were, great energy, caution, and entire devotion to his professional duties. Although suffering constant agony from an incurable disease, he attended to his patients until a short time before he died. He felt that while he had the power,

it was his duty to administer such relief to the suffering as his large experience enabled him to afford. About a year before his death, while riding in his carriage on his daily round of visits, he was struck in the face by a stone, thrown by a boy; this, though but a slight wound originally, developed into a malignant tumor, which, after protracted and unmitigated suffering, ultimately extinguished the spark of life on Sept. 6, 1861.

Dr. Foulke was eminently a good and just man, simple and unostentatious in habits and manners; he died full of years, and honored by all who were fortunate enough to have known him. In all the varied relations of life he obtained the love and esteem of his follow-men; than this there can be no nobler epitaph!"

WILLIAM HARRIS, M. D., was born in Chester Co., Pa., August 18, 1792. In 1833 he removed to Philadelphia, where he became an eminent practitioner, especially in the department of obstetrics. His habits were active and energetic, and his practice bold and decisive. The character of Dr. Harris was that of a good man, and his place at the church of God was never vacant, when his duties allowed him to attend upon Divine service.

HENRY DRAYTON, M. D. Born in Charleston, S. C., February 25, 1823. He was the grandson of William Drayton, who was Chief Justice, holding his commission from the British Government. Deprived of his place on account of his loyalty to the Colonies, he subsequently became a Federal judge by appointment of General Washington. Dr. Drayton's medical studies were pursued in the office of Dr. Caspar Wister, of Philadelphia, and he had graduated at the University of Medicine in 1845. He subsequently enlarged his knowledge by a visit to the seats of learning in Europe; and returning to Philadelphia, became connected as a teacher of medicine with Professor Joseph Leidy, of that city. While one of the surgeons to the Episcopal Hospital of Philadelphia, he ligated the subclavian artery for axillary aneurism, the first time that operation had been performed there for that purpose. A courteous gentleman and devoted friend, he attracted the regard of all who knew him. In his profession he was full of ambition, zeal, and enterprise. Amid the most brilliant prospects of future usefulness and success, he passed away on the 19th of April, 1862, in the 37th year of his age.

ALBERT OWEN STILLE, M. D. Born in Philadelphia January 20, 1827, and died at Fortress Monroe, June 23, 1862. He was the first physician who offered his services to his country for the war. They were unstintedly rendered, appreciated, and handsomely acknowledged by the commanding officer. Thoroughly educated, industrious and honorable, he was beloved as a man and respected as a skilful member of the medical corps of the army.

ISAAC REMINGTON, M. D. Born on Jan. 5, 1804; graduated at the University of Pennsylvania in 1824, and entered at once upon the practice of his profession. He was an active member of all the local societies for advancement in medical science, and was a representative to the American Medical Association at its session in Philadelphia. Several valuable papers were read by him at different periods, one of the most elaborate of which was the report on the meteorology and epidemic diseases of the city and county for 1854. Dr. Remington was a great lover of his profession, and diligently and successfully pursued it for a number of years. He was a well read and judicious practitioner, and as a man he was pure and above reproach. He died of phthisis pulmonalis, on the 10th of November, 1862, in his 59th year, lamented by all who knew his extraordinary worth.

WILLIAM DARLINGTON, M. D., was born near Dilworthstown, Chester County, Pa., April 28, 1782.

For many years he practised medicine with eminent success in his native county, at the same time storing his mind with every description of useful knowledge. His thirst for the languages was remarkable, and few more extensive or critical linguists could be found. He had a strong love for natural science, and excelled in botany. In 1837 he published an elaborate work on the flowering plants of his native county, entitled "*FLORA CESTRICA*;" and ten years after, printed a useful treatise on "*Agricultural Botany*."

But the varied abilities of Dr. Darlington fitted him for other duties than those of his profession, and hence we find him holding high public and official positions. On repeated occasions he was returned to the Congress of the United States; and acted for many years as the President of the first Board of Canal Commissioners, instituted in Pennsylvania. He also acted as one of the visitors at West Point, appointed by the President. Literary honors were frequently bestowed upon him, which were richly merited and

gracefully worn, among which was the degree of LL. D., conferred by Yale College.

On the 23d of April, 1863, this eminent civilian and man of science sank to his last rest, leaving a vacancy not soon or easily to be supplied. As a man in all the social and domestic relations of life; as a diligent and laborious student; a conscientious and inquiring statesman, laborious student, a humane and enterprising physician, and a consistent Christian, he has left no better model for public imitation.

DELAWARE.

JOHN D. PERKINS, M. D., was born in Baltimore, Md., on 27th August, 1790, and died on 13th August, 1860. The early years of his practice were passed in his native State. In 1826 he removed to Smyrna, Delaware, where for thirty years his entire energies were devoted to his professional labors. Broken health compelled him to withdraw from active duties about five years prior to his decease. He won the respect and confidence of all who knew him in life, and died universally lamented.

GEORGE RICHARD BAKER, M. D., was born in Chester County, Pa., in May, 1812, and died in Wilmington, Del., April 28th, 1862. He was esteemed a sound physician, and had the full confidence of the community in which he practised.

INDIANA.

TALBOT BULLARD, M. D., was born in West Sutton, Mass. He pursued his studies in New Orleans while teaching a select school in that city. In July, 1844, he commenced the practice of medicine at Indianapolis, Indiana, and soon rose to the first rank in the profession. His duties as State Sanitary Agent at Shiloh, and subsequently at Vicksburg, undermined his health; chronic diarrhœa supervened, of which he died on the very day of his return to his home (18th June, 1863), in the 48th year of his age.

CHARLES FISHBACK, M. D., was a graduate of the Medical School at Louisville, Ky., and practised with great zeal, success, and integrity of purpose at Indianapolis, Indiana. His death occurred

in his 47th year, and was caused by a wound contracted at a post-mortem examination. He was active in all benevolent and religious enterprises, and especially devoted to the wants of the sick poor.

KANSAS.

J. F. SMITH, M.D., was born in Kentucky, graduated at the Louisville University, and migrated to Kansas in 1856, having located at Leavenworth. In the spring of 1862 he was commissioned as Assistant Surgeon in the 6th Kansas Regiment, was stationed at Fort Scott, and after a few months' service, died, in the fall of the same year, of typho-malarial fever, in the 30th year of his age. His colleague, Dr. C. A. Logan, remarks: "He was honorable in his profession, a bitter enemy to quackery, and spent his time assiduously in the endeavor to make himself a reputable name in his profession. The representatives of legitimate medicine in Leavenworth lost a valuable friend when he died, and the community a surgeon of no mean talent and promise."

ILLINOIS.

SAMUEL W. EVERETT, M.D., was the son of Mr. Charles Everett, of Boston, Mass., and was born Aug. 25th, 1820, in the city of London, where he was also educated, with the exception of a year spent at one of the principal schools in Paris. In 1840 he accompanied his family to the United States, and the next year established his residence with them in Quincy, Illinois. For a few years he was engaged in business, which proving unsuccessful, he resolved to follow his inclinations and tastes for study, and commenced preparing himself for the medical profession in 1846, as the pupil of Dr. Adams Nichols. A part of the years 1847-8 he was employed in the Quartermaster's department at San Antonio, Texas, being in charge of the medical stores of that post. During his stay in Texas he was frequently called on, in the absence of other physicians, to act as surgeon to the companies of Rangers, stationed on the frontier, in which practice he was quite successful, and gained some valuable experience. He attended his first college course of lectures at St. Louis, Mo., under Dr. Pope, in the winter of 1848-9, and while there, exercised his talent for drawing in

supplying the college with a set of illustrations for anatomical and surgical lectures. The following winter he attended college in New York, and was also the private pupil of the celebrated Dr. Mott, by whom he was occasionally called on to perform operations before the clinique. At the conclusion of the course he took his degree with honor, and soon after commenced practice in the city of Washington. On the establishment of the medical branch of Georgetown College, he was appointed Professor of Anatomy of that institution. In 1852 he returned to Quincy, where he continued to practise medicine and surgery, in which latter branch he more particularly excelled, having successfully operated on and treated many difficult cases. On the call for troops for the present war, he received the appointment of Surgeon to the 10th Reg. Illinois Vols., and was stationed at Cairo, until August, 1861, when he was promoted to the rank of Brigade Surgeon. In the winter he served in Missouri, on the staff of Maj. Gen. Pope, as Medical Director of his department. Early in 1862 he was assigned to duty in one of the hospitals in St. Louis, in March was selected by Gen. B. M. Prentiss as his Staff Surgeon, and proceeded with him to Tennessee.

On the battle-field of Shiloh, April 6, 1862, at about 8 o'clock in the morning, he fell, pierced by two balls, one through the forehead, and the other through the body, which were instantly fatal. The following particulars were gathered from his comrades, and from Gen. Prentiss, who speaks highly of the valuable assistance rendered by him on the battle-field, both as a physician and as an officer. He had been actively engaged in his surgical duties from the commencement of the action, when the General saw him stop men who were retreating, and induce them to return to the front. A short time after, he again saw him rally fifty men, and lead them personally again into the fight, during one of the most critical periods of the engagement. It was at this time, when in near proximity to the enemy, and between the opposing lines, that he was shot dead from his horse.

In 1848 he was married to Miss Mary Smith, of Alexandria, Va., by whom he had two sons, one of whom survives.

His knowledge, and skill in the practice of surgery, coupled with his remarkable talent and perseverance, promised the attainment of a high position in that branch of his profession. His kind and gentle manners endeared him to his patients and associates; and the deprivation of his pleasant companionship and

lively conversation caused him to be sadly missed in the family circle and among his more intimate acquaintance, no less than among his many professional friends, one of whom writes of him: "Dr Everett sustained in Quincy, and several of the adjacent counties, a deservedly high reputation as a surgeon.

"All of us were in the habit of availing ourselves of his superior operative skill in important and difficult cases. As a general practitioner he was scientific, safe, and judicious.

"As a citizen, he was much respected for his moral worth and his social qualities. As a member of the Adams County Medical Society (of which he was secretary for several years), no man was more respected for honorable and urbane deportment."

The unassuming deportment of Dr. Everett was unfavorable to his rapid introduction to practice; but had he lived, with his industry and perseverance, the influence of this would have been more than counterbalanced by the ultimate confidence of the profession, and patronage of the public.

All who knew him regret his untimely death, while admiring his patriotic bravery. He died as he had lived, in the conscientious performance of his duties.

UNITED STATES ARMY.

SURGEON W. J. H. WHITE was killed at the Battle of Antietam on 17th September, 1862. The life and character of Dr. White are so admirably presented in an order under date of 20th September, 1862, issued from the office of the Surgeon-General, that I take occasion to quote it entire.

"Surgeon White was appointed Assistant Surgeon in the Army on the 12th of March, 1850, and was ordered to New York city to report to Surgeon Mower, then the principal medical purveyor of the Army. In August of the same year he sailed with recruits under Colonel Craig, for Port Lavacca, Texas, and accompanied them to El Paso, from whence he soon was ordered to accompany the escort to the Boundary Commission as medical officer. Being relieved in May, 1851, from duty with that escort, he was assigned to Abiquiu, New Mexico, and served at different posts in that department (he was one of the pioneers of Fort Craig), until the year 1855, when he was ordered before the Medical Board at New York for examination for promotion. Having been examined and

found qualified, he received a short leave of absence, at the expiration of which (August 18, 1855) he was assigned to temporary duty at Fortress Monroe, and shortly after received orders to sail with troops for Texas. In this department, he served at Fort Davis, San Antonio, Camp Colorado, Forts Duncan, McIntosh, and Clark, from which latter post he was relieved on the 19th of December, 1860, and ordered to report in person to the Surgeon-General.

"In January, 1861, Doctor White arrived at Washington, and, after having been some time attached to the Surgeon-General's Office, was detailed for duty with troops in this city. Here he was in charge of the General hospital in the Washington Infirmary, and, in addition to his duties in that hospital, was detailed as member of the Army Medical Board, convened in this city, for the examination of candidates for the position of Surgeon of Brigade and for appointment in the Medical Staff of the Army.

"On the 16th of April, 1862, he was appointed Surgeon to fill an original vacancy, and on the 23d June was ordered to report to the Head-Quarters, Army of the Potomac, where he served as Medical Director of Franklin's Corps; and it was while fulfilling the duties of this office that Surgeon White was killed on the field of battle.

"The first medical officer of his corps who has fallen in battle during the present war, the Surgeon-General feels it no less his duty than his pleasure to bear tribute to the many estimable qualities which had endeared Surgeon White to his brother officers. Amiable in disposition, and of talents and integrity unquestioned, Surgeon White performed every duty which devolved upon him during a service of more than twelve years, to the entire satisfaction of this department, which feels his loss as that of an officer not easily to be replaced."

LUTHER V. BELL, M. D. Appointed Brigade Surgeon August 3, 1861.

Sept. 16, 1861, reported to Gen. McClellan, and on 21st of same month was assigned to duty with Gen. Hooker's brigade. On February 12, 1862, he died.

Dr. Bell was an author of much ability. He was for many years resident physician of the McClean Asylum, Mass.; and at one time was President of the Association of Physicians of Lunatic Asylums.

SAMUEL EVERETT, M. D. Appointed Brigade Surgeon Sept. 7, 1861, and assigned to duty under General Thomas, at St. Louis. He was killed in battle at Shiloh, Tenn., on April 6, 1862. (*Vide* a more extended notice in a former part of this report.)

JOHN T. CRAWFORD, M. D. Appointed Brigade Surgeon Oct. 2, 1861. On 5th of same month he was ordered to report to Gen. McClellan, and was assigned to 3d brigade of Heintzelman's division. He died June 7, 1862.

S. L. BIGELOW, M. D. Appointed Brigade Surgeon April 4, 1862. On 12th of same month he reported to the Army of the Potomac. On 10th of October he resigned, his resignation to take effect on 6th November; but he died at Hagerstown, October 31, 1862.

SURGEON R. F. SIMPSON, U. S. A. Appointed Assistant Surgeon April 19, 1861. Assigned to duty on 22d of same month in Washington City, and died on July 4, 1861.

ASSISTANT SURGEON C. G. HOLLENBUSH, U. S. A. Died Aug. 6, 1861, at McKey's Half Falls, Snyder Co., Pa.

ASSISTANT SURGEON KIRBY RYLAND. Died at Fort Union on Sept. 22, 1861.

UNITED STATES NAVY.

SURGEON THOMAS HARRIS. Died at Philadelphia March 4, 1862.

SURGEON SAMUEL BARRINGTON. Died at Philadelphia Sept. 4, 1862.

SURGEON C. H. WAINWRIGHT. Died at Ship Island July 30, 1862.

PASSED ASSISTANT SURGEON JAMES S. GILLIAM. Lost in the "Levant," June 30, 1861.

ASSISTANT SURGEON CHARLES H. COVELL. Died on board the "Colorado" at sea, August 7, 1861.

ASSISTANT SURGEON W. B. GIBSON. Died on board the "Connecticut," November 8, 1862.

ASSISTANT SURGEON JACOB H. GOTWOLD. Killed on board the "Keystone State," in her action with the rebel ram off Charleston, January 31, 1863.

ASSISTANT SURGEON EDWARD A. PIERSON. Killed on board the gunboat "Penobscot," in her action with the rebel batteries in the sounds of North Carolina, May 22, 1863.

Respectfully,

CHRISTOPHER C. COX.

AN INQUIRY
INTO THE
PHYSIOLOGICAL AND MEDICINAL PROPERTIES
OF THE
VERATRUM VIRIDE:
TOGETHER WITH
SOME PHYSIOLOGICAL AND CHEMICAL OBSERVATIONS
UPON THE
ALKALOID VERATRIA
OBTAINED FROM THIS AND OTHER SPECIES.

BEING THE
PRIZE ESSAY TO WHICH THE AMERICAN MEDICAL ASSOCIATION
AWARDED THE GOLD MEDAL FOR MDCCCLXIII.

BY
SAMUEL R. PERCY, M. D.,
PROFESSOR OF MATERIA MEDICA AND THERAPEUTICS IN THE NEW YORK MEDICAL COLLEGE.

Salus populi suprema lex.

"For the proper perfection of medicine as a natural science, two things are in main needed; the first is a right understanding of the causes and symptoms of disease; the second, a correct knowledge of the *action of medicines*. Should our acquaintance with these two subjects be complete, we should then be able to do all that man could by any possibility effect, in the alleviation of human suffering. This sublime problem is already being unravelled at one end. Diagnosis and Nosology are making rapid strides; and perhaps we shall soon know what we have to cure. But at the other end our medical system is in a less satisfactory condition; and though some impatient men have essayed, as it were, to cut the Gordian knot, and have declared boldly on subjects, of which they are ignorant, yet it must be confessed, that in the understanding of the action of medicines, and of their agency in the cure of diseases, we do not so much excel our ancestors. While other sciences are moving, and other inquiries progressing fast, this subject, so momentous in its applications, has, in spite of the earnest labors of a few talented investigators, made, after all, but little progress. *Let but those who feel this want bestir themselves to remove it, and it will soon be done.* Those doubts and difficulties, which are now slowly clearing away before the efforts of a few, will then be finally dispelled by the united energies of all; and instead of our present indecision and uncertainty on many points, we shall find ourselves eminently qualified to wage the conflict with disease, being skilled in that science whose name bespeaks its peculiar importance, the science of *Therapeutics*."

HEADLAND, *Action of Medicines.*

CONTENTS.

SECTION FIRST.

NATURAL HISTORY OF VERATRUM VIRIDE.

	Page
Botany and Physical Characteristics	223
History	224

SECTION SECOND.

CHEMISTRY AND PHARMACY OF VERATRUM VIRIDE.

DIVISION FIRST.—Chemical History	226
DIVISION SECOND.—Process for Obtaining the Tincture, Resinoid, and Alkaloid of Veratrum Viride	227
DIVISION THIRD.—Chemical Tests and Reagents for the detection of the Alkaloid, and its Comparison with Alkaloids obtained from other Species of Veratrum.	229
DIVISION FOURTH.—Dose and Mode of Administration	233

SECTION THIRD.

PHYSIOLOGICAL ACTION ON ANIMALS.

DIVISION FIRST.—Experiments elucidating the Physiological Action of Veratrum Viride on Animals	235
DIVISION SECOND.—Experiments elucidating the Physiological Action of the Resinoid Principle of Veratrum Viride on Animals	243
DIVISION THIRD.—Experiments elucidating the Physiological Action of the Alkaloid Veratria obtained from Veratrum Viride and from other Species on Animals	246
DIVISION FOURTH.—Experiments elucidating the Physiological Action of Veratrum Viride on Frogs and Bats, by the Examination of the Circulating Blood with the Microscope	249

SECTION FOURTH.

THERAPEUTIC APPLICATIONS.

DIVISION FIRST.—Therapeutic Application of Veratrum Viride, with the relation of a few Cases in point	254
---	-----

	Page
DIVISION SECOND.—Therapeutic Application of Veratrum Viride in Typhus and Typhoid Fevers.	269
In Phthisis, also, as a <i>Means of Diagnosis</i> in Diseases of the Lungs and Heart	271
DIVISION THIRD.—Therapeutic Application of the Resinoid of Veratrum Viride	272
DIVISION FOURTH.—General Synopsis of the Alkaloid Veratria, from Veratrum Viride	275

SECTION FIFTH.

SUMMARY OF THE PHYSIOLOGICAL AND THERAPEUTIC ACTION OF VERATRUM VIRIDE ON MAN.

DIVISION FIRST.—General Action	277
DIVISION SECOND.—Its Action on the Vascular System	280
DIVISION THIRD.—Its Action on the Respiratory System.	282
DIVISION FOURTH.—Its Action on the Nervous System	283
DIVISION FIFTH.—Its Action on the Muscular System	284
DIVISION SIXTH.—Its Action on the Secerning System	284
DIVISION SEVENTH.—Its Action on the Alimentary Canal	286
DIVISION EIGHTH.—Emetic Action	286
DIVISION NINTH.—Recapitulation—	
First Degree of Operation	288
Second Degree of Operation	288
Third Degree of Operation	289
Fourth Degree of Operation	289
DIVISION TENTH.—Veratrum Viride in large and poisonous doses	291
DIVISION ELEVENTH.—Cumulative Action	293.

SECTION SIXTH.

Modus Operandi	294
--------------------------	-----

PRIZE ESSAY.

PHYSIOLOGICAL AND MEDICINAL PROPERTIES OF THE VERATRUM VIRIDE.

SECTION FIRST.

BOTANY AND PHYSICAL CHARACTERISTICS OF VERATRUM VIRIDE.

NAT. ORD.—*Melanthaceæ*.

LINN. SYST.—*Polygamia Monœcia*.

COMMON NAMES.—*American hellebore. Swamp hellebore. Indian poke. Itch weed, &c. &c.*

Part used in Medicine—*The root.*

THE *Veratrum Viride* has a perennial, thick, fleshy root, "the upper portion of which is truncated, the lower solid, and beset with numerous whitish fibres or radicals." "The stem is annual, round, solid, striated, pubescent, and from three to six feet high; being throughout the greater part of its length closely invested with the sheathing bases of the leaves.

"The leaves are alternate, and gradually increase in size as they descend; the lower ones are from six to twelve inches long, oval, acuminate, pubescent, strongly ribbed, and plaited, the lower part of their edges meeting round the stem. The upper leaves are gradually narrower, the uppermost and the bracts, linear-lanceolate.

"The flowers are numerous, yellowish-green, and arranged in compound racemes, axillary from the upper leaves, and terminal. Each flower is accompanied by a boat-shaped acuminate, downy bract, much longer than its pedicle. Peduncles roundish, downy. The perianth is divided into six oval, acute, nerved segments, of which the alternate ones are the longest, and all contracted at the

base into a sort of claw, with a thickened cartilaginous edge. The stamens are six, with recurved filaments and roundish. Anthers two-lobed. Ovaries three, cohering with acute recurved styles as long as the stamens.

"The fruit consists of three capsules united together, and separating at top, and dehiscing on the inner side.

"Seeds flat, winged, imbricated."

It is indigenous in almost every part of the United States, growing in wet meadows and upon the banks of rivers.

"In this connection it may perhaps be asked, What are the botanical differences between *Veratrum viride* and *Veratrum album*?

"To this inquiry, I must answer, that all which I have ever been able to discover consists in the fact that the edges of the segments of the perigone, in *Veratrum viride*, are slightly incrassated, and contracted below their middle, which is not the fact in *Veratrum album*; and that the general aspect of *Veratrum viride* is coarser and rougher, and it is of a darker green color. These are small characters, but they appear to be permanent, incapable of change by climate, soil, culture, &c. &c."¹

The root is the part used in medicine, and it should be gathered in the autumn after the top has died. It might probably be equally active in its medicinal effects if gathered very early in the spring, but this can seldom be done, for it commences to grow before the snow and frost have fairly disappeared.

When freshly gathered the root has a strong, pungent, acrimonious taste, and when bitten, leaves a prickling and bitter taste in the mouth; but it loses most of this acrimonious effect by drying. In order to preserve the root properly, it should be cut in fragments, well dried at a low temperature, and kept in a dry place, for if kept where it is damp it deteriorates very quickly.

The leaves possess but little of the active properties of the root.

History.—It was known and used by the Indian before the occupation of this country by the European. The best description of its early history, since that time, is given in Bigelow's *American Medical Botany*, though neither Bigelow nor Ware understood its therapeutic powers in acute diseases, but, like the ancient Asclæpiadæ, with their preparations of "white hellebore," used it only in chronic affections.

¹ Tully's *Materia Medica*, vol. i. p. 215.

About the year 1830, Drs. Tully and Ives, of New Haven, investigated very fully the therapeutic properties of the plant.

The attention of the medical profession was particularly called to its use in the treatment of acute diseases, by Dr. Charles Osgood, of Providence, R. I., in an essay written for the *American Journal of Medical Sciences*, 1835.

Dr. Osgood, in a very modest manner, gives his preceptor, Professor William Tully, the credit of first calling his attention to its proper therapeutic powers, but Dr. Osgood, like modest men in general, underrates his own merits, and has written a very truthful and praiseworthy essay, which has been studied by all who have followed in his footsteps, but has been excelled by none; it still stands unrivalled, the best monograph that has been written on the plant.

The writer of this "Inquiry" first learned the knowledge of the physiological and therapeutic properties of the plant from Dr. Osgood, in 1849, and he has constantly used it since that time.

By the majority of the profession, but little attention was paid to Dr. Osgood's essay, until the use of the plant was revived by Dr. Wm. C. Norwood, of Cokesbury, South Carolina.

Dr. Norwood published a pamphlet on the therapeutic properties of *Veratrum viride* in 1851, and disseminated it very widely; it has gone through three editions.

After this time the properties of the drug were discussed in many of the medical societies of this country, and many excellent articles have appeared from time to time, in the medical journals, especially in those of the South and West.

In 1856, the Section of *Materia Medica* of the New York Academy of Medicine, appointed the author of this work to prepare a monograph upon the plant, and open a discussion upon its properties in the Academy.

In the same year the Harveian Circle, of the city of New York, appointed Drs. Percy, Miller, and Belden to perform a similar duty for that Society.

In 1858, the Massachusetts Medical Society appointed Drs. Cutter, Richard, and Ingalls, a committee to bring this remedial agent to the direct attention of the Society, a task which they performed in May, 1858, and again in 1861. In the meantime many able papers appeared upon the uses of the plant, in the medical journals, among the best of which may be mentioned those of Professor M'Gugin, of the Iowa University.

SECTION SECOND.

CHEMISTRY AND PHARMACY OF VERATRUM VIRIDE.

DIVISION FIRST.

CHEMICAL HISTORY.

DR. CHARLES OSGOOD, of Providence, R. I., published the results of some chemical experiments upon this plant in the *American Journal of Pharmacy*, vol. i., second series. He obtained a white, inodorous, and very acrid powder, which he thought to be the alkaloid principle of the plant, but no satisfactory experiments were made by him on the point.

In the 9th volume of the same journal, Thos. A. Mitchell gives a proximate analysis of the plant, and states that he obtained an active principle, in the form of a white powder, but he was unable to make any chemical examinations, as the amount obtained was very small.

In the 10th volume of the same journal, Henry W. Worthington gives a more complete analysis of the plant, and states that he obtained "an alkaloid substance identical with veratria," that it "was soluble in dilute acids," and that "the sulphate, tartrate, and oxalate were crystallizable salts."

To Mr. Worthington, then, is due the honor of having first announced by publication, and demonstrated by chemical tests that an alkaloid existed in the plant.

In the same journal for May, 1857, Mr. Joseph G. Richardson gives an elaborate chemical essay on this plant. After reviewing what was already known and giving the results of various experiments for obtaining the alkaloids, Mr. Richardson gives several tests for its detection, and also proves by many separate analyses that the alkaloid obtained by him was identical in its chemical reactions with the alkaloid obtained from *Veratrum album*.

In 1857 the author of this monograph presented for the inspection of the Fellows of the N. Y. Academy of Medicine, 38 grains

of the pure alkaloid obtained from *Veratrum viride*, and described the process by which it was obtained; this was in a very fine, white, amorphous powder, possessing all the physical properties of veratria. The Academy did not publish this analysis.

In 1862 Geo. J. Scattergood made an elaborate investigation of the alkaloid obtained from both species, the results of which he presented in an essay to the American Pharmaceutical Association, at their meeting, August, 1862, and it may be found entire in their printed proceedings of that year.

DIVISION SECOND.

PROCESS FOR OBTAINING THE TINCTURE, RESINOID, AND ALKALOID.

Tincture.—The root, coarsely powdered, is treated with alcohol fortius, sp. gr. 0.817, by percolation, the alcohol distilled off, and the residuum evaporated to an extract over a water bath until it is nearly dry, or until it ceases to become lighter upon being weighed at intervals of an hour or two.

To make the concentrated tincture spoken of in this work, one part of this extract is dissolved in ten parts of alcohol, 0.817, and filtrated.

Resinoid.—*Veratrum viride* root coarsely powdered is treated with alcohol, 0.817, by percolation, the alcohol distilled off, and the residuum evaporated to a soft extract. A saturated solution of this extract is made in alcohol, 0.817, and filtered slowly into a large quantity of cold water previously acidulated with sulphuric acid, and kept constantly stirred. The fluid is filtered off, leaving most of the resinoid substance in the beaker; fresh acidulated water is added, well stirred, and the whole then thrown on the filter, and repeatedly washed with cold water, until every trace of sulphuric acid is removed; it is then dried. This substance I have called resinoid. By repeated examinations, it is entirely free from every trace of alkaloid.

It is also free from the extractive substances that are soluble in water.

I have used this in the form of tincture, made by dissolving it in alcohol 0.817, of the strength of $\frac{1}{25}$ grain of the resinoid to each minim. This resin is of a soft consistence; about 25 per cent. of it is soluble in ether, and the remainder is harder and more friable.

Both resins produce the therapeutic action above noted, but the alcoholic resin is more uniform and certain in its action than the ethereal. The ether extracts the oily portions.

Alkaloid.—The processes adopted by Worthington, Richardson, and Scattergood may be found in the works already referred to.

The process that I have adopted for obtaining the alkaloid has differed from that recommended by either of these gentlemen.

Any quantity of the coarsely-powdered root of the *Veratrum viride* is moistened with water and packed into a percolator; water acidulated with hydrochloric acid is added, sufficient to cover the root, and allowed to stand for twenty-four hours.

It is then allowed to percolate, and the first portion of the fluid which contains most of the strength of the root, is kept by itself; fresh acidulated water is added, until the root is exhausted.

The latter liquid is evaporated to about one-quarter its former bulk, filtered, and the first portion of the percolate mixed with it; soda is then added so long as a precipitate forms.

The precipitate is washed in a small quantity of cold water and dried; it is then treated with ether, the ether is filtrated off, and allowed to evaporate.

This mass is then treated with water acidulated with hydrochloric acid, filtered, and ammonia added so long as a precipitate forms; the fluid is filtered off, the precipitate washed in a small quantity of cold water, and mixed with a small amount of animal charcoal, which has been previously moistened with a little alcohol.

The whole is put into a flask and alcohol added to it; the flask is put in hot water, and the hot alcoholic solution filtered off, and more alcohol added, which is treated in the same way.

The whole of the alcoholic solution is either distilled or evaporated, according to the quantity of alcohol used; and the soft mass that is left is treated with successive quantities of boiling water, acidulated with hydrochloric acid.

This solution is filtered and the alkaloid is precipitated with ammonia.

The precipitate when dry is treated with ether, filtered, and the ether allowed to evaporate slowly.

The alkaloid is in a semi-crystalline state and of a slightly yellow tinge.

To prevent the excessive and painful sneezing caused by inhal-

ing this alkaloid, I have found it advisable, when manipulating with it, to anoint the nostrils as far up as possible with castor oil, and to tie over the nostrils a piece of moistened sponge.

DIVISION THIRD.

CHEMICAL TESTS AND REAGENTS FOR THE DETECTION OF THE ALKALOID.

As I have obtained veratria from *Veratrum viride*, it is, if precipitated, a pure, white, amorphous powder; if from the evaporation of ether, it is semi-crystalline and of a slightly yellow tinge. ;

It is of an acrid and burning taste, but is not very bitter. It is necessary to be exceedingly cautious in handling it, for if a very minute portion is breathed up the nostrils, it excites violent sneezing, which is difficult to check, and occasionally produces alarming symptoms.

Its formula is probably the same as that of commercial veratria, $C_{34}H_{22}NO_6^+Ve$.

If a small quantity of veratria be placed upon platina and held over a flame, it fuses at a gentle heat; if it be now removed it solidifies as it cools, and becomes a semi-transparent yellow mass; but, if the heat be continued, it swells up and is gradually dissipated. It is insoluble in water, but readily soluble in ether, alcohol, chloroform, and benzole.

It neutralizes acids, and forms salts which are soluble in water; they are of an acrid and persistently burning taste, and produce a considerable degree of irritation if rubbed upon the skin.

In the experiments I give below I have as closely as possible followed the experiments performed by my friend, Professor T. G. Wormley, upon the purified veratria (of Murk's manufacture) from *Veratrum sabadilla*, and published by him in the *Ohio Medical and Surgical Journal*, July, 1860.

My object was to institute a more elaborate research than that previously made by Mr. Richardson, and ascertain if the alkaloids from the different plants were identical in their chemical reactions.

For the purpose of experimenting, a given quantity of the alkaloid was dissolved in a given quantity of distilled water, with precisely sufficient hydrochloric acid to effect its solution.

1. *Potassa*.—Potassa produces in solution of hydrochlorate of veratria a copious, flocculent, dirty-white precipitate, which is not soluble in an excess of the reagent. If viewed immediately on precipitation by a low power of the microscope, it is seen in coagula, but if viewed after standing some minutes many short prismatic crystals will be seen amongst the coagula, which shortly disappear. The $\frac{1}{100}$ grain of this veratria is most readily detected by this reagent, and with the microscope $\frac{1}{1000}$ may be easily recognized. The carbonate of the alkalies acts in the same manner as potassa.

2. *Ammonia*.—The reaction is the same as with potassa, but the precipitate is slightly soluble in an excess.

3. *Nitric Acid*.—If concentrated nitric acid is brought into contact with this alkaloid it agglutinates into resinous-looking lumps of a dirty yellow color, which slowly dissolve in the acid. If the alkaloid is first moistened with water and a small quantity of nitric acid then applied, it exhibits a yellow tint, but on the addition of water forms a colorless solution.

4. *Sulphocyanide of Potassium*.—A flocculent white precipitate insoluble in excess of the reagent.

5. *Chromate of Potassa*.—A light yellow amorphous precipitate, insoluble in an excess.

6. *Bi-Chromate of Potassa*.—A copious, dirty yellow amorphous precipitate, insoluble in an excess of the reagent, but soluble in nitric acid.

7. *Ferrocyanide of Potassium*.—A copious bluish-black, flocculent precipitate, soluble if a small excess of the reagent is carefully added.¹

8. *Ferricyanide of Potassium*.—An abundant greenish-yellow precipitate, soluble in an excess.

9. *Iodide of Potassium*.—A dirty white amorphous precipitate, becoming a dirty greenish-white upon standing some time.

10. *Iodine in Iodide of Potassium*.—A copious reddish-brown amorphous precipitate, soluble in liquor potassæ.

11. *Bromine in Bromo-hydric Acid*.—A dull yellow amorphous precipitate.

12. *Carbazotic Acid*.—A greenish amorphous precipitate, which upon standing a short time becomes a greenish-yellow.

¹ "This reaction takes place if an old solution is used, but if a new and pure solution is used there is no precipitate."—W.

13. *Bi-Chloride of Platinum*.—A dirty yellow amorphous precipitate.

14. *Bi-Chloride of Mercury*.—A white precipitate.

15. *Tannic Acid*.—A dirty white amorphous precipitate.

16. *Terchloride of Gold*.—A canary yellow amorphous precipitate, insoluble in an excess of the reagent, and insoluble in acetic acid, except upon the application of heat.

17. *Sulphuric Acid*.—This test should always be applied to the alkaloid or its salts in a dry state. If a small portion of the alkaloid is touched with a drop of strong sulphuric acid no color is immediately developed, but in the course of a minute a yellowish-red, and then a beautiful bright red color appears. This color will appear immediately upon touching the veratria with the sulphuric acid if the slide upon which it is placed is warmed. The color is not destroyed by heat, but it disappears after standing two or three hours; the color will disappear in fifteen minutes if a small crystal of bi-chromate of potash is stirred upon the mixture.

Professor Wormley has, by this reagent, detected $\frac{1}{80000}$ of a grain of purified commercial veratria.

This last reagent—sulphuric acid—is the only one of all these that can be deemed decisively confirmatory of the presence of veratria; the other reagents are common to so many organic substances that they can only be regarded as confirmatory in connection with the action of sulphuric acid.

There is but one substance with which it would be at all likely to be confounded by this reaction of sulphuric acid, and that substance is salicine. Sulphuric acid produces a red color on solanine, narceine, papaverine, and piperine, but, as with salicine, the color is produced immediately upon the contact of the cold acid.

But the reaction of sulphuric acid on salicine and veratria differ, for whereas on salicine the color is immediately produced upon the application of sulphuric acid on a cold slide, we have seen that the color does not appear for a minute or more with veratria unless the slide or the acid is warmed.

The color produced is also different, for with veratria it is, for a moment, a yellowish, then a beautiful bright red, then an intense blood-red color; with salicine it is more of a purple red. There is the difference between the two colors that there is between bright arterial and venous blood. The color produced upon veratria lasts

but two or three hours, while that produced upon salicine lasts double that time.

But the behavior with other reagents would definitely settle the point if doubts were excited.

In a correspondence with Geo. J. Scattergood, of Philadelphia, on this subject, he says: "By treating commercial veratria with ether I have separated it into two substances. That portion insoluble in ether behaves with sol. of iodohydrarg. potass., and with tr. iodine, on a muriate boiling, and sal ammonia added while yet warm, differently from the way pure veratria does.

"Veratria, soluble in ether, gives a beautiful pink-red or crimson color with sulphuric acid, and a butyric acid smell; the matter insoluble in ether gives a darker color, a greenish or brownish-red, and a musky odor."

It will thus be seen that in following the experiments of Prof. Wormley with veratria obtained from *Veratrum sabadilla*, we have obtained almost identical results with the veratria we have made from *Veratrum viride*; and have thus confirmed Mr. Richardson's observations, that the two alkaloids were identical in their chemical reactions.

NOTE.—"Extraction of Veratrine by Ether and Chloroform.

"1. The chloride of veratrine. One grain pure veratrine dissolved in 100 grains of water by the aid of hydrochloric acid, and then the solution agitated for several minutes with an equal volume of ether; the ether then drawn off and evaporated to dryness, leaves a residue of 3-100th grain of chloride of veratrine.

"One grain of veratrine in 100 grains water, by the aid of hydrochloric acid, and agitated with an equal volume of chloroform, and the chloroform evaporated to dryness, leaves an opaque vitreous residue of 33-100th grains of chloride of veratrine.

"2. Pure veratrine. One grain of veratrine dissolved by hydrochloric acid in 100 grains of water, and the solution rendered slightly alkaline by potash solution, gives a copious white precipitate, so dense as to make the liquid almost gelatinous. If now the mixture be mixed with an equal volume of ether and agitated for several minutes, and then the ethereal solution evaporated to dryness, it leaves a transparent vitreous residue of 91-100th grain of pure veratrine.

"When one grain of veratrine is treated as above and agitated with an equal volume of chloroform, and the chloroform solution evaporated to dryness, it leaves a perfectly transparent vitreous residue of 97-100th grain of pure veratrine."—From *Ohio Med. and Surg. Journal*, vol. xii., No. 6, p. 464, by Prof. Wormley.

DIVISION FOURTH.

DOSE AND MODE OF ADMINISTRATION.

By consulting other parts of this monograph it will be seen that the dose of the concentrated tincture (the formula for which is given in the first division of this section) varies in quantity and frequency of repetition according to the effect desired to be produced.

I shall be exceedingly explicit upon this point throughout the whole of the fifth section, and shall, therefore, need but few words at this place.

As an arterial sedative the dose, to an adult, may usually be from 2 to 3 minims, repeated every one, two, or three hours, according to the effect upon the pulse.

If it be deemed advisable to bring the patient promptly under its influence 3 minims may be given every hour until the pulse indicates its sedative influence, which will generally be felt before the third hour; it may then be repeated either in smaller doses or at longer intervals, but it will produce less unpleasant effects in small doses frequently administered, than in large ones at longer intervals.

Large doses are apt to produce vomiting, paleness, and alarming prostration, and the physician is frequently called in haste in consequence of the unpleasant effects of them. Nearly all instances of alarm have been produced by large doses, and not by small ones frequently repeated. Large doses, also, do not so readily control the circulation, as excitement and vomiting supervene, and the pulse sometimes becomes thready, frequent, and irregular.

With children it is especially necessary to give it in small and frequent doses rather than in large ones at long intervals, and if administered in this manner alarming effects will seldom be produced.

Children, from the activity of the circulation and rapidity of excretion, will bear a rather larger proportional dose than adults; thus a child eight years of age will bear about one-half the dose an adult will. To a child of that age 2 minims may be given as a first dose, and one minim may be repeated afterward every one or two hours according to its effect upon the pulse. Unless in very urgent

cases it is not advisable to bring the pulse more than 10 or 15 beats below the normal standard, and to do this it is but required to increase or diminish the dose according to the state of the pulse, and give it at intervals of one or two hours rather than at longer periods.

With adults a given number of minims may be put into a given number of teaspoonfuls of water, and one or more teaspoonfuls given at a dose.

With children it is more easily given in sweetened water, or sweetened water and orange juice, or syrup of tolu.

SECTION THIRD.

PHYSIOLOGICAL ACTION ON ANIMALS.

DIVISION FIRST.

EXPERIMENTS ELUCIDATING THE PHYSIOLOGICAL ACTION OF
VERATRUM VIRIDE ON ANIMALS.

EXPERIMENT I.—Ten drops of the concentrated tincture put into a gelatine capsule, were passed down the throat of a mongrel dog weighing about twenty pounds; the dog had eaten nothing for six hours, and the pulse was beating 90 in the minute. In an hour and ten minutes after taking it, the dog vomited freely, and twice afterwards. In an hour and a half after the dose was given, the pulse was 60; in two hours and a half, 53. In four hours it had risen to 56; the dog seemed well, and ate heartily.

EXPERIMENT II.—Twenty drops of the same tincture were given to a dog who had been fasting for twelve hours. In an hour and seventeen minutes he vomited, and continued to strain and vomit for some time. At the expiration of two hours and a half, the same dose was repeated, the pulse then beating 61 in the minute. The dog, exhausted by the previous vomiting, lay down and did not attempt to stand up. In four hours from the administration of the first dose, the pulse was 29 in the minute, and the dose was again repeated. The retching was frequent, but nothing but a small quantity of viscid mucus and bile was thrown up. In five hours from the administration of the first dose, the pulse was 21, soft, creeping, and easily compressible. The pupils were fixed, but of ordinary size. They did not contract in strong light, but the lids were closed if anything was pointed at the eye. The dog would not move when struck with a switch. Six hours from the first dose, the twenty drops were repeated, the pulse being then 18, and intermittent. At the seventh hour there was great prostration, the retching continued, the pulse was irregular, intermittent, and easily compressed, and beating 17 in the minute. The dog would

remain in almost any recumbent position he was placed, and his limbs were moved without an attempt at resistance. The lids would close if the eyeball was touched, otherwise they remained open; the eye had a fixed, staring, lack lustre look.

The dog was then left, and I did not see him again for twelve hours, during which time he drank two quarts of water. He seemed very feeble, and would come upon being called. The pulse was 149 and soft. He ate freely of meat, and later in the day seemed well, but sober, the pulse not exceeding 83 after his meal.

EXPERIMENT III.—Two drachms of the same tincture in capsules, were enveloped in meat and given to a small dog. The pulse was 87. In two hours and twenty minutes he vomited some milk that had been taken just before the medicine, and threw off finally, all the contents of the stomach. In three hours the pulse was 39. After twenty-four hours, during which he was fed, he seemed quite well and lively.

EXPERIMENT IV.—The same dose was given in the same manner to a dog, and immediately afterwards a pint of melted lard was thrown into the stomach with a syringe. The pulse was 92. In three hours and five minutes the dog vomited, and the retching was prolonged and prostrating. In six hours the pulse was 44, and the prostration very great.

EXPERIMENT V.—An ounce of the tincture, evaporated down to a soft extract and enveloped in a thin slice of meat, was given to a small dog who had eaten nothing for twenty-four hours. The pulse was 97, sharp and irritable. In thirty-eight minutes he vomited the meat with some fluid and mucus, and some of the extract. The pulse had fallen to 78. The vomiting continued, bringing up some frothy and bilious-looking matter. In two hours and a half the pulse was 55, and it did not at any time fall below 48. The prostration was less than in the two previous experiments. No doubt the greater part of the extract had been thrown up.

EXPERIMENT VI.—Twenty minims of the same tincture were passed by one of Wade and Ford's hypodermic syringes, into the femoral artery of a dog, whose pulse was at 85. In one minute he fell upon his side quite powerless, the eyes became dull and fixed, and the lids did not close on touching the cornea. In five minutes every sign of life was extinct.

Autopsy immediate. The heart's action had ceased; but upon

making an opening into the aorta, a large quantity of blood was thrown out, and the heart's contractions were renewed feebly for several seconds. Both right and left heart were filled with blood. The blood coagulated.

EXPERIMENT VII.—Into the cellular tissue of the right lumbar region of a mongrel dog weighing sixteen pounds was passed, by Wade and Ford's hypodermic syringe, ten minims of the concentrated tincture. The pulse at the time was 110. The movements soon became uneasy and unsteady. In eighteen minutes the dog vomited, and the pulse was reduced to 63. In thirty-four minutes the dog staggered, lay down, and was unable to rise, the retching continuing frequent. In thirty minutes the dog lay completely on its side, and the saliva flowed very freely from his mouth. The eye was dull, the pupils widely dilated, but fixed; but the eye closed if the cornea was touched. The limbs were very flaccid, the pulse 32. Ten minims more of the same tincture were now injected into the left lumbar region. In forty-five minutes from the first injection, the heart was beating 14 in the minute, and very irregular; the saliva continued to flow freely from the mouth, being almost as limpid as water. *The dog was perfectly insensible to pain.* The respirations were slow but full. At one hour from the first injection, the heart merely fluttered; the dog could be moved in any way without the slightest *voluntary* motion. The urine and feces were passed involuntarily. I now threw into the stomach, with a syringe, a pint of warm milk punch, containing four ounces of brandy, and ten grains of carbonate of ammonia. In ten minutes the pulsations, though irregular, could be felt distinctly, in eighteen minutes the heart was beating regularly 30 in the minute, and in two hours the dog was walking about, but with a very demure and sober appearance. The pulse was then 55. The next day he had quite recovered.

This dog was peculiarly susceptible to the influence of the medicine. I have repeated the same experiment on other dogs, but with nothing like the same amount of prostration resulting.

EXPERIMENT VIII.—Ten minims of the tincture were injected into the cellular tissue of the hind leg of a rat. In eleven minutes I took him out of the cage, and he suffered himself to be handled without making any resistance. On replacing him in the cage, he would remain in any position in which he was laid, without moving. The next day he was running about apparently as well as ever.

EXPERIMENT IX.—To a large, coarse mongrel dog was administered, by injection into the stomach, one ounce of the tincture, in about eight ounces of good beef soup. The pulse was 142. For about fifteen minutes he seemed quite well, but soon after showed signs of uneasiness, walking about with a dejected air, and constantly lying down and rising again. In forty seven minutes he vomited violently, throwing off the contents of the stomach with great force. This continued for some time. At one hour from administration, the pulse was 63, at two hours, 40. Two drachms more of the tincture were then administered. In about fifteen minutes the vomiting was again excessive. In three hours from the first administration he lay still and quiet on his side; the pulse was 34, the pupils were fixed and without expression. The saliva flowed very freely, and was saved for future experiment. In four hours from the first administration I injected, by the hypodermic syringe, twenty minims of the tincture into the femoral artery. In a minute and a half he was dead.

Autopsy immediate. The bladder contained two and a half ounces of urine, which was saved. The chambers of the heart on each side were filled with fluid blood. The lungs were congested, while the mucous membrane of the stomach was but very slightly so.

EXPERIMENT X.—This urine, diluted with about the same quantity of water, was thrown into the stomach of a cur weighing seven pounds. The pulse was 144. In an hour and thirty-five minutes the dog vomited a small quantity of frothy mucus. The pulse was then 97. At two and a half hours it was 83, and at three hours, 73.

EXPERIMENT XI.—At the same time with the last experiment, the saliva was administered to another cur of the same size. This saliva measured eight fluidrachms. The pulse was then 127. In one hour and thirty-five minutes the pulse was 82. At two and a half hours, 70; at three hours, 59. This dog did not vomit.

EXPERIMENT XII.—To a small cur dog, when the pulse was 140, I administered, in a piece of meat rolled up, fifteen minims of the tincture, with one-quarter grain sulphate of morphia. In one hour the dog was very still and quiet, the pulse 112, and the respirations easy and full. I repeated a five minim dose of tincture of veratrum combined with one-eighth grain of sulphate of morphia every hour for five hours. In six hours there had been no vomiting, the pulse was 45, and the respirations slow, less frequent than without the morphia. The pupils were contracted. The morphia here overpowered the veratrum. At the expiration of ten

hours there had been no vomiting; the pulse was 46. The effects of the morphia still continued, and the dog was roused with difficulty.

EXPERIMENT XIII.—Two drachms of the tincture were thrown into the stomach of a cur dog weighing about nine pounds. In forty-eight minutes the vomiting was very free. I now injected into the cellular tissue, under the fore leg, one-quarter grain of sulphate of morphia in solution. In a few minutes the vomiting ceased, and the dog lay down and slept for several hours. In three hours the pulse was reduced to 100 beats in the minute. The pupils were contracted. I have repeatedly administered codea in doses three times larger than morphia, but without as marked beneficial results.

EXPERIMENT XIV.—Five minims of the tincture were injected into the cellular tissue, around the left eye of a cur dog. The pupils were watched for three hours, but there was no appreciable difference between them, both were dilated.

EXPERIMENT XV.—To a strong, coarse cur was administered $\frac{1}{2}$ gr. of the acetate of strychnia; the pulse was 129. In five minutes the pulse had increased to 167, irritable and wiry. Two drachms of the tincture of veratrum viride were now thrown into the stomach. There were frequent and violent twitchings of the muscles, more particularly in the lumbar region and hind legs. In half an hour the pulse was 160. The pulse continued gradually to fall, and the convulsive actions to grow less, until at 2 hours and 17 minutes he vomited. From this time there were no more twitchings, and in four hours the pulse had fallen to 83.

EXPERIMENT XVI.—To a strong coarse cur, weighing about 25 pounds, was given $\frac{1}{4}$ gr. of strychnia. He had had nothing to eat or drink for 24 hours. The pulse was 131. In fifteen minutes he was violently convulsed; the pulse could not be counted. I now injected into the cellular tissue over the cardiac region, one drachm of the concentrated tincture of veratrum viride. In 30 minutes after, he vomited, and the pulse could be counted, being 126. The convulsive movements grew less and less violent, and in one hour and thirty minutes had ceased. The prostration was not great, and the pulse did not sink below 100.

EXPERIMENT XVII.—The same dog, by means of the veratrum viride, was brought into the condition described in Experiment II. When perfectly prostrate and unable to make the slightest resistance, $\frac{1}{6}$ gr. of the acetate of strychnia was thrown into the sto-

mach; the pulse was then only 17 in the minute. In 16 minutes, he gave one strong convulsive movement, and stood upon his feet, with an alarmed and wild appearance; the pulse had risen to 46. He lay down again, and did not attempt to move for two hours; the pulse was 84. Late the next evening I gave this dog $1\frac{1}{2}$ gr. of the same strychnia, without being accompanied or followed by veratrum; in the morning he was dead and very stiff. See Expt. No. IV., p. 247.

These experiments with strychnia have been repeated many times, but *great* caution is necessary, for an overdose of strychnia quickly causes death. Veratrum is only antidotal to a certain point.

EXPERIMENT XVIII.—To a cur dog, weighing about 12 lbs., the tincture was administered in repeated doses, as in Experiment II., until the pulse was reduced to 26 beats in the minute. The electro-magnetic apparatus was then applied, one pole being placed under the fore leg of the left side (where there was very little hair), between it and the body, and the other pole in the same position on the hind leg of the opposite side. The convulsive twitchings produced by this were for some time quite feeble, but by continuing the current they became stronger, and in 15 minutes the pulse had increased to 32 beats. Upon suspending the application of the instrument, the pulse again fell to 26, but five minutes after its re-application the dog had to be held, to restrain its struggles. After continuing for five minutes more he was able to stand, and in ten minutes more he walked about. The pulse had risen to 56.

EXPERIMENT XIX.—Two dogs of about equal size were brought into nearly the same condition as described in Experiment II., by the tincture of veratrum viride. One of them was kept in a warm room all night, and the other was put into an open yard. (This was in Jan. 1857, and the temperature about 24° F.) In the morning the dog confined in the room had nearly recovered, while the one exposed to the cold was dead and frozen. This experiment was performed to ascertain whether death would be caused while diminishing the temperature of the body. As the pulse was very slow, the animal heat was necessarily diminished, and when the dog was exposed to a temperature below freezing point, it was not able, under the depressing influence of the medicine, to maintain its animal heat, and consequently it died from the effects of cold. This fact should teach us the necessity in cases of poisoning with this medicine, with other arterial sedatives, or in cases of profuse hemorrhage, of keeping the patients in a warm and comfortable

room; for if they are in a cold place their temperature may be dangerously diminished, whereas no great diminution of animal heat will be experienced if they are kept in a warm place.

EXPERIMENT XX.—To a dog of about 16 lbs. weight the tincture was administered, in repeated doses as in Experiment II., until the pulse was reduced to 31 beats in the minute. A teaspoonful of tincture of cantharides was then given in a little water; the vomiting and retching were quickly suppressed; in 7 minutes, the pulse had risen to 42—in 15 minutes it was 49; a teaspoonful dose of tincture of cantharides was then repeated. In half an hour from the administration of the first dose the pulse was 54, and the dog seemed in a great measure to have recovered from his depression. This same experiment was repeated seven times with this dog, with very similar results. The tincture of cantharides did not produce strangury, even when pushed to $\mathfrak{z}\text{iv}$ within the hour.

To another dog it was administered three times, after the depressing effects of veratrum viride, in doses of $\mathfrak{z}\text{ij}$ twice repeated at an interval of 30 minutes, and it quickly relieved the depression and the sinking pulse, but produced a hard and frequent pulse, many beats quicker than when the experiment was commenced. There was also, with this dog, at each experiment, great thirst, but no strangury or purging; at the two last trials there was priapism.

EXPERIMENT XXI.—To a large dog, weighing about 30 lbs., $\mathfrak{z}\text{iss}$ of tincture of cantharides was administered every 15 minutes until $\mathfrak{z}\text{ix}$ were given. The pulse at the first dose was 93 in the minute; it gradually increased, becoming hard, wiry, and too rapid to count. In 2 hours and 40 minutes he had a bloody stool, evidently accompanied by severe abdominal pains; the respiration was hurried; there was great thirst, and painful priapism. At the expiration of three hours from the administration of the cantharides, $\mathfrak{z}\text{j}$ of the tincture of veratrum viride was given. In 18 minutes the priapism had ceased, and apparently the abdominal pains also. In 30 minutes the pulse could be counted, 114 in the minute. He now vomited once, throwing up a quantity of water; he then lay down, and did not move for two hours; the pulse was at that time 89. The next day he seemed quite well.

Upon this dog this experiment was repeated four times, three times with somewhat similar results as above stated, the resinoid tincture being given. On the fourth trial, but little water was given him, and he died in convulsions before the veratrum viride could be

administered. The kidneys, bladder, and mucous membrane of the stomach and intestines were much congested.

Of the different medicines I have administered, these two, *veratrum* and *cantharides*, seem to me to be the most directly antidotal, and wherever I have found an inordinate degree of depression caused by any of the preparations of *veratrum viride*, I have obtained the quickest and most complete relief from these symptoms with *cantharides*. I have administered it twice with equally beneficial effects in the human subject.

EXPERIMENT XXII.—A cur dog, troubled with hydrocele of the left testis, was brought to me. I withdrew the fluid by means of Wade & Ford's hypodermic syringe, and injected into the cavity 20 minims of concentrated tincture diluted with one drachm water. It was three hours after the operation before any effect was noticed upon the pulse, and its greatest diminution in five hours was only 20 beats in the minute. The dog was kept, and in two weeks the cure of the hydrocele was complete.

EXPERIMENT XXIII.—One fluidounce of blood was drawn from the femoral vein of a large cur dog into a graduated glass. Twenty minims of the tincture of *veratrum viride* was then administered by hypodermic injection, and in one hour after another ounce of blood was drawn in, as nearly as possible, the same manner into a similar graduated glass. Both were put aside, and in six hours it was almost impossible to tell them apart.

EXPERIMENT XXIV.—A fluidounce of blood was drawn, under like circumstances, from a small cur dog. An ounce of the tincture was then thrown into the stomach with a little water. In $1\frac{1}{2}$ hour there was vomiting. The same quantity of blood was then drawn as before, and both were set aside until the next morning ($7\frac{1}{2}$ hours). There was scarcely any difference in appearance.

These experiments were performed in order to ascertain whether *veratrum viride*, like many of the salines and antimonials, diminishes the amount of fibrin in the blood or causes any difference in appearance. The results would indicate that it does not.

EXPERIMENT XXV.—A compress was applied to the femoral artery and a strong ligature tied very tightly around the right thigh of a small dog, the nerve having been dissected up and left out of the ligature. Two drachms of the tincture were thrown into the stomach, and as vomiting was induced, one drachm of the tincture was thrown into the opposite femoral artery. Death ensued immediately. About an hour after the death of the animal, the muscles

were laid bare in several places and but little effect was produced upon them by galvanism; but upon the right leg below the ligature galvanism produced active movements of the muscles, as in death from ordinary causes.

This proves that the action upon the muscles is communicated through the blood and not through the nerves.

This dog, before the application of the ligature, was fully under the effects of chloroform.

EXPERIMENT XXVI.—To a small, quiet, and very easily managed pet dog, small doses were repeatedly given to see the smallest amount that would produce a noticeable effect upon the pulse; $\frac{1}{4}$ minim every hour would, at the expiration of five or six hours, make a slight difference in the pulse, but $\frac{1}{4}$ or $\frac{1}{8}$ minim at like intervals produced no effect.

Whenever I have found a dog more than usually quiet, I have repeated these experiments, and the limit at which it produces an effect is quite marked. The $\frac{1}{3}$ minim every 15 minutes for four hours produces no noticeable effect.

DIVISION SECOND.

EXPERIMENTS ELUCIDATING THE PHYSIOLOGICAL ACTION OF THE RESINOID PRINCIPLE OF VERATRUM VIRIDE ON ANIMALS.

EXPERIMENT I.—Five minims of the tincture, made from the *resinoid principle* alone, was injected by Wade & Ford's hypodermic syringe into the cellular tissue of the right thigh of a dog weighing about 14 lbs. The dog had eaten nothing for 14 hours. The pulse was 146. The same dose was repeated every fifteen minutes until eight doses had been injected; the pulse constantly and steadily diminishing.

Five minutes after the eighth dose, the dog lay upon his side and would make no effort to get up; the pulse was 32. Four minim doses were then injected into the opposite thigh every five minutes. The fourth dose was hardly given before the heart's pulsations ceased. Autopsy immediate. The heart was instantly exposed and both sides were found filled with blood. Upon the aortic valves, and forming a perfect network over them, were threads of fibrin, which adhered with much tenacity; but there was no appearance of inflammation and no doubt the fibrin had formed, in consequence of the sluggishness of the circulation, which

for some fifteen minutes before death counted only 8 in the minute. With this dog the flow of saliva was very abundant, and the urine was passed involuntarily before death.

Upon application of electro-magnetism, ten minutes after the heart was removed, the muscles were not excited into action. The lungs and mucous membrane of the stomach were congested. It was found that the last injection had passed into a vein.

EXPERIMENT II.—To a large cur dog, weighing about 25 lbs., 30 minims of the resinoid tincture of *veratrum viride* (containing $1\frac{1}{2}$ gr. of resin) were thrown into the stomach at—

11.15	o'clock	A. M.	The pulse being	140
12.10	"	P. M., repeated 20 minims.	"	117
12.20	"	" free salivation.	"	110
12.55	"	"	"	84
1	"	" vomited many times in quick succession, the latter vomit being a tough, ropy mucus and much bile; the vomiting was painful and prostrating.	Pulse	80
1.15	"	" pupils fixed.	"	76
1.45	"	" profuse diuresis and salivation.	"	72
1.47	"	" vomited several times, viscid mucus and bile.		
3.30	"	" sleeping.	Pulse	70

EXPERIMENT III.—To another dog, weighing about 20 lbs., 5ss of the same resinoid tincture, containing $1\frac{1}{2}$ gr. of resin, was given on a piece of bread, which was thrust down the throat.

11	A. M.	Pulse	144
12	" salivation.	"	124
12.20	P. M.	"	96.
12.25	" vomited many times, the latter vomit being viscid, ropy mucus and bile.		
12.50	"	Pulse	80
1.10	"	"	74
1.40	" profuse diuresis, no dilation of pupils.	"	70
3.35	" quiet.	"	40

EXPERIMENT IV.—Half a drachm of the same resinoid tincture was thrown, by the hypodermic syringe, into the cellular tissue under the fore leg of a dog weighing 25 lbs.

12.45 P. M.		Pulse	96
12.55	" salivation.	"	72
1	" vomited and freely purged; vomiting continued until viscid mucus and bile were thrown up, and then bile alone.		
1.15	" intense uneasiness and cries caused by the painful contractions of the diaphragm in vomiting.		
1.30	"	Pulse intermittent	52
1.35	" walks with unsteady and uncertain movements of the voluntary muscles, especially of the hind legs, which are kept wide apart.		
1.50	" pupils widely dilated.	Pulse	40
3.30	" salivation profuse, moaning cries and painful contraction of the abdomen, respiration 84.	Pulse	122

This dog was well the next morning.

EXPERIMENT V.—Twenty minims of the resinoid tincture were thrown into the stomach of a dog, whose weight was about 16 lbs., at 3.45 o'clock P. M., the pulse being 143.

In ten minutes it vomited, and the same dose was repeated.

4.20 P. M.		Pulse	62
4.35	" profuse salivation, vomiting continued.	"	56
5	" injected 5 minims into the femoral vein.		
5.05	" purged freely.		
5.10	" vomiting viscid mucus and bile, pupils widely dilated.	Pulse	36
5.17	" gave 2 oz. of brandy in water.	"	34
5.20	" no more vomiting.	"	46
5.45	" " repeated the brandy.	"	56
9	" " unable to stand, pulse thready, intermittent, could not be counted. During the next day it vomited several times, seemed in great pain, moaned, pulse could not be counted. Died during the night.		

EXPERIMENT VI.—Half a drachm of the same resinoid tincture of veratrum viride was thrown, by hypodermic injection, into the side of a large dog weighing about 30 lbs.

11.45 A. M.		Pulse	165
11.56	" saliva flows very freely, purged, restless.	"	106
12.03 P. M.	vomited freely viscid mucus and bile.		

12.15	P. M.	purged again, vomiting.	Pulse	60
12.30	"	pupils widely dilated, vomited clear bile.	"	52
12.40	"	made an incision down to the femoral vein; he made no resistance and seemed to be unconscious of pain.	Pulse	41
12.44	"	injected 20 minims into the femoral vein, death was almost instantaneous. Both sides of the heart were <i>full</i> of bright chocolate-colored blood; the liver was <i>gorged with dark blood</i> ; the mucous coats of the stomach and rectum were greatly congested; the other organs were healthy.		

EXPERIMENT VII.—Half a drachm of the same resinoid tincture was thrown into the stomach of a large dog; when he had vomited freely, and was in the condition mentioned in Experiments II. and III., one grain of sulph. morphia was given in solution. There was no more vomiting, the dog became easy and quiet, and in forty minutes was sleeping soundly; the pupils were much contracted. The pulse remained for several hours about the same as when the morphia was given. He was quite well next day.

DIVISION THIRD.

EXPERIMENTS ELUCIDATING THE PHYSIOLOGICAL ACTION OF THE ALKALOID VERATRIA OBTAINED FROM VERATRUM VIRIDE, AND FROM OTHER SPECIES, ON ANIMALS.

EXPERIMENT I.—Ten minims of a solution containing $\frac{1}{8}$ gr. of the alkaloid veratria made from veratrum viride, by Mr. George Scattergood, of Philadelphia, were given to a large dog weighing about thirty pounds, in gelatine capsules; great care was taken that none of it escaped into the mouth.

3.35	P. M.		Pulse	150
4	"	salivation very profuse.	"	148
4.05	"	vomited.	"	—
4.20	"	vomiting very frequently.	"	140
4.45	"	vomiting viscid mucus and bile.	"	128
5.20	"	prostration very great, unable to stand.	"	122
5.45	"	pupils widely dilated, eyes fixed.	"	122
6	"	prostration great, profuse salivation.	Intermittent	
9	"	walking about, but sober and dejected.		112

Three days afterward the same dose was again given to the same dog, with very similar results. With this animal, the pulse was not much depressed, the prostration was very great, and there was almost total loss of power of the voluntary muscles.

EXPERIMENT II.—One-third gr. of veratria (viride) was injected into the thigh of a dog weighing about fifteen pounds.

3.40 P. M.		Pulse 120
4	“ saliva flows most profusely, purged.	“ 100
4.30	“ “ “	“ 100
5.45	“ “ “	“ 100
9	“ “ “	“ 92

EXPERIMENT III.—A subcutaneous injection of $\frac{3}{4}$ gr. of veratria (viride) was given to a coarse dog weighing twenty-five pounds. He had been well fed, and was very lively.

3.35 P. M.		Pulse 116
3.40	“ very dejected appearance, free flow of saliva.	
4.15	“ repeated the injection of 1 gr. on the other side.	“ 90
4.17	“ purged.	
4.30	“ saliva flows freely, very dejected.	“ 82
4.35	“ vomited frequently, respirations labored, prostration very great, legs wide apart.	
5.15	“ prostration increases.	“ 70
5.20	“ painful vomiting every few minutes, unable to stand, gave 2 oz. of brandy in water.	
5.30	“ no vomiting since taking the brandy	“ 88
5.45	“ no vomiting, repeated 2 oz. of brandy	“ 88
9	“ no vomiting, very prostrate, unable to stand, pu- pils dilated and fixed, repeated the brandy.	“ 98
9. A. M.	Next day—unable to walk steadily, stands over the water lapping every few minutes.	
		Intermittent 170

Recovered during the next day.

EXPERIMENT IV.—A subcutaneous injection of $\frac{1}{2}$ gr. of veratria (album) was made into the thigh of a small dog, weighing about six pounds.

11.45 A. M.		Pulse 110
12.05 P. M.	vomited freely, purged freely.	“ 175
12.20	“ vomiting continues.	“ 180

- 12.22 P. M. repeated the same dose, but on the other side.
 1.10 " prostration very great, unable to stand. Pulse 160
 1.25 " administered $\frac{1}{2}$ gr. of strychnia. Intermittent 80
 1.21 " in violent convulsions, of which he died in a
 short time.

EXPERIMENT V.—Ten minims of a solution containing $\frac{1}{2}$ gr. of veratria purified with great care from some of Powers & Co.'s commercial article, were given to a dog, whose weight was about twenty-five pounds, in gelatine capsules.

10.	A. M.		Pulse 132
10.15	"	saliva flowing freely.	" 130
10.45	"	vomited several times in a few minutes.	
11.15	"	continues vomiting viscid mucus and bile.	" 126
12	M.	continues vomiting.	" 130
2	P. M.	continues vomiting, great prostration.	" 145
4	"	continues vomiting, great prostration, dilated pupils.	" 115
5.45	"	unable to stand.	" 100

Although walking about the next morning, he was dull and dejected, and ate but little, but drank water very frequently in small quantities.

During the months of July and August, 1857, I tried thirty-one experiments upon dogs with the alkaloid, made by myself from veratrum viride, and with the commercial veratria made by Merck, for the purpose of ascertaining if they were alike in their therapeutic action.

My principal object was to ascertain whether they produced the same sedative effect upon the pulse as the tincture of the veratrum viride.

From these experiments I learned that the alkaloid from the viride was more sedative in its effects upon the pulse than the commercial veratria; that it was less irritant, seldom causing an increase in the number of pulsations which the commercial veratria frequently did; that it produced vomiting and prostration in about an equal degree; that when a large dose was given, and prostration induced, there was most generally a dilatation of the pupils, but this effect was not produced by small doses; that purging was but seldom produced by either when given by the mouth, but nearly always when given by hypodermic injection; that large doses of

either, amounting to two grains at a time, might be given, producing alarming prostration, and most painful and protracted vomiting without causing death, if brandy, brandy and morphia, or tincture of cantharides was administered, and that in every instance the animal's life might be saved by proper attention.

In those instances where death took place from these alkaloids, it was caused by repeating the dose, and not by a dose of two grains administered at one time. Upon post-mortem examination the mucous membrane of the stomach was much inflamed, and in some instances the inflammation extended more or less through the whole intestinal tract, and was always seen at the rectum; the kidneys were in a state of congestion, and the heart filled with dark blood.

When the dose was given by hypodermic injection, the results were somewhat different, as will be seen by reference to Experiments II., III., IV., of Division Third.

Both alkaloids produced a sedative effect upon the pulse, but the commercial veratria did not to the same extent, as that from the viride, and neither of them to the same extent as the pure resinoid, or the tincture made from veratrum viride.

The prostration was more complete, alarming and prolonged, and the vomiting was more painful and continued from the effects of the alkaloids than from the other preparations named.

DIVISION FOURTH.

EXPERIMENTS ELUCIDATING THE PHYSIOLOGICAL ACTION OF VERATRUM VIRIDE ON FROGS AND BATS, BY THE EXAMINATION OF THE CIRCULATING BLOOD WITH THE MICROSCOPE.

As early as 1849 I experimented on frogs with veratrum viride, watching its effects upon the circulation of the blood with the microscope.

At that time my experiments were made by throwing the substance into the stomach of the frogs; since then I have repeated the same experiments, and have also used injection under the skin by means of the hypodermic syringe; and have experimented also by placing the frogs in water which was mixed with a certain amount of tincture of veratrum viride.

I had but one object in trying these experiments, and that was, to watch the effects of veratrum on the circulation; so it will be

unnecessary for me to relate a large number of instances, and it will save time, and be quite as easily understood if I give the general effects produced.

In these experiments it was my endeavor to subject the frog to as little annoyance as possible; it was placed in a coarse linen bag, and the frog plate had a raised edge around it, so that it would hold water to keep the frog always moist.

The bag had several holes at the end through which the mouth could be seen, and through which could also be introduced a small syringe, with a long nozzle, that would lead directly to the stomach.

The circulation of each frog experimented upon was always watched before any medicine was administered, and every precaution taken to ascertain the normal circulation. The effects of *veratrum viride* on frogs were the same as on man and animals—a direct sedative to the vascular system.

Doses of two minims of the tincture, diluted, when thrown into the stomach, with ten or fifteen drops of water, cause a marked diminution of the frequency of the circulation, in from three to fifteen minutes after administration, and the pulsations continue to decrease for one or two hours. If the water in which the frog lies is frequently changed so as to keep it cool, and the dose is repeated every hour, for two, three, or four successive hours, the effects may be watched until the circulation is so regular and sluggish that the blood globules may be counted as they course through the smaller vessels, and the difference between the white and red disks, and their position in the larger capillaries, may be easily discerned. Sometimes the circulation would almost entirely cease in the web, but would return again in ten or fifteen minutes if the frog upon the plate was placed in fresh running water.

It was always interesting to watch the cessation of the circulation and its re-commencement.

When large doses of the *veratrum viride* were given by the stomach, the cessation of the circulation never occurred suddenly. There would be intermissions of longer or shorter duration; after each one, the current of blood when re-established would be slower than before, and after a while would cease. After it had ceased there would be an occasional throb, which would cause a general movement, but upon the subsidence of the impetus, the blood disks would be in about the same situation as before.

The occurrence of this throb was the first notice given of the return of the circulation; it would be repeated at shorter intervals,

sometimes a minute elapsing, and then several of such pulsations would occur in a minute. Then a short but general movement would take place of the blood-disks; at each pulsation, ceasing upon cessation of the *vis a tergo*, and again renewed, until the circulation was entirely established in a slow but steady current.

I have frequently seen in the breaking up of this status, that the red disks do not, as in a normal state, occupy the central current only, but both red and white disks are mixed up heterogeneously, and some time elapses before the red disks again regularly take their place in the centre of the current.

By hypodermic injection the same results as have just been spoken of occurred, but with greater rapidity and with one-quarter the dose that was administered by the stomach.

One-half a minim thrown beneath the skin of the leg would produce the same amount of sedative effects in five minutes that two minims administered by the stomach would produce in an hour. I have frequently exposed both feet of the same frog, so that they could be examined separately, at the same instant by merely shifting the stage of the microscope. Into one leg I have injected two minims of the tincture, and the cessation of the circulation of that foot has been very sudden, whereas that in the other would be continued for some time, gradually becoming slower.

Sometimes within *one*, generally within five minutes, the frog is apparently dead, so far as the circulation in the web is concerned, from the hypodermic injection of from two to five minims of the tincture; but, if placed in fresh water, leaving the head exposed to the air, the frog will generally revive, and frequently will entirely recover, though sometimes it will partially revive and after all die within a day or two.

With the frog, cessation of the heart's action is not so sudden and complete as in warm blooded animals, and they will bear a much larger proportional dose of *veratrum viride*.

The effects of *veratrum viride* on the circulation of the frog are seen with more satisfaction if it is administered in small and frequent doses thrown into the stomach. By hypodermic injection the effect is too sudden, but by the former method the circulation can be reduced gradually until it becomes so slow that the number of the blood disks passing in a given time may be ascertained, as well as their size and appearance.

Upon the bloodvessels (capillaries, as well as arteries and veins) *Veratrum viride* produces a sensible dilatation; and upon the blood

disks, the first effects are an endosmosis, an increase in their size; but as the effect of the medicine is continued to the second or third degree of its operation, there is an evident exosmosis, for they appear smaller in size.

I have noted these effects upon the bloodvessels and upon the disks so frequently, that I am satisfied of the correctness of my observations.

It is impossible, by any means known to me, to measure such differences in size, but an instructed eye can take notice of them, and although such effects may not be demonstrable to all, to one who will watch carefully and repeatedly, such differences may be seen.¹

These effects are produced so as to be properly observed only by small doses frequently repeated to the proper point, but large doses overpower the action of the heart and bloodvessels, and cause a paralyzing effect, sometimes amounting to cessation of the circulation.

To satisfy myself more thoroughly on this point, I have placed frogs under the microscope in the method above stated, and after carefully examining the circulation, I have injected into the peritoneal cavity five minims of the tincture of capsicum, or cantharides, in a little water. The circulation was soon very much increased, and continued to increase with fearful rapidity.

After a time, as the blood was propelled through the vessels with greater rapidity, there was a sensible contraction in their size. It seemed as though the vessels feeling the *vis a tergo* braced themselves to meet the encounter. At this time I have administered *veratrum viride* by hypodermic injection. It exerted, in a few minutes, a marked sedative influence, though the pulsations were irritable and frequent. I have repeated the injection of *veratrum* at intervals, and closely watched the circulation.

It controlled the pulsations, though not to the same degree as in health, and with large doses would check the circulation entirely. As the vessels were contracted in one instance by the inflammatory state produced, they were more plainly noticed to dilate under the sedative effects of the *veratrum*.

Under these experiments (and I have repeated them many times) most of the frogs die of peritonitis; making it evident that if there are lesions, which produce an excited state of the circulation, a

¹ It is asserted that such differences can be measured. See Dublin Quarterly Journal of Medicine, Feb. 7, 1855.

mere lessening of the frequency and force of the circulation will not effect a cure. But I will discuss this subject further, under the head of *Modus Operandi*.

I administered *veratrum viride* several times to bats, and examined the circulation under the microscope. The dilatation of the bloodvessels was as plainly marked as in the frog.

When frogs were taken fresh out of the water, and the web placed under the microscope, I have frequently confined my attention to one small capillary vessel. This capillary, that before the administration of the *veratrum* allowed but a single blood disk to pass at a time (the disks moving in a single file), would, when under the influence of the medicine, so dilate as to allow two globules to move along together, not quite in line, but one slightly behind and at the side of the other; but, at the slightest obstruction, moving up in line, and at the moment of the re-establishment of the circulation the one that was behind the other, by a change, would frequently take the lead.

At one spot where there was a sudden bend or turn in the capillary vessel, but one disk would pass at a time, but not in the hurried manner noticed before the administration of the *veratrum*.

The movements of the disks by the operation of the medicine are rendered slow and orderly. The bloodvessels become passively dilated.

I have tried various medicinal agents both with bats and frogs, but principally with frogs, to ascertain which is the best and quickest antidote to remove this dilated state of the bloodvessels, and to increase the vigor of the circulation. I have found that the alcoholic stimulants have in most instances had the desired effect of increasing the vigor of the circulation, but, of all medicinal agents, tincture of *cantharides* is the most prompt and efficacious, as it not only increases the vigor of the circulation, but also induces as marked a contraction of the capillaries as *veratrum* does a dilatation, and that in this respect they are directly antagonistic. *Codeia* and other remedies have been used, but we shall speak of them all in their proper place.

SECTION FOURTH.

THERAPEUTIC APPLICATIONS.

DIVISION FIRST.

THERAPEUTIC APPLICATION OF VERATRUM VIRIDE WITH RELATION
OF A FEW CASES IN POINT.

CASE 1. Encephalitis. Louisa K., æt. 11 years.

This young girl is of remarkably good constitution, and has not had a day's sickness for six years.

On the morning of 4th of July, she was playing with her companions, and fell down the stone steps in front of the house, striking her head severely. She went into the house, complaining of pain in the head, and sickness at the stomach. Her mother kept her quiet until towards evening, when she allowed her to go to play again. During the evening one of her playmates pushed her down the same stone steps, and she again struck her head. She complained so much that her mother put her to bed.

During the next day she complained of lassitude, creeping chills, and headache, and I was called to see her about 5 P. M.

I found her suffering with an intense throbbing headache; she said that the pain was "inside the head;" the face was flushed, the eyes were injected, the right pupil dilated to nearly double the size of the left; there was great intolerance of light, it seemed to greatly increase the pain; there was much thirst, but the water she drank was vomited up almost as soon as taken; the skin was hot, the pulse was frequent and wiry, beating 174 in the minute.

Upon examining the cranium, I could discover no injury, except a small ecchymosed spot on the right temple. I administered 1½ gr. of podophyllin rubbed up with a little sugar.

Date.	Pulse.	Treatment.	Remarks.
July 5th, 6 P. M.	174	Con. Tr. Ver. Vir. m <i>j</i> j.	
7 "	176	" " m <i>j</i> j.	Occasional delirium.
8 "	174	" " m <i>j</i> j.	Delirium more marked.
9 "	160	" " m <i>j</i> j.	Vomited bile.
10 "	110	" " m <i>j</i> j.	
11 "	93	" " m <i>j</i> j.	Vomited bile.
12 "	79	" " m <i>j</i> j.	Constant chattering delirium, talking about her head.
		" " m <i>j</i> .	
6th, 1 A. M.	80	" " m <i>j</i> j.	Bowels freely open, discharge bilious.
2 "	72	" " m <i>j</i> j.	
3 "	72	" " m <i>j</i> j.	Bowels again opened.
5 "	76	" " m <i>j</i> j.	
6 "	70		Noisy chattering delirium.
8 "	70		Bowels opened; lies quietly.
9 "	59	" " m <i>j</i> j.	Asleep for nearly an hour.
10 "	48		Respirations easy.
11 "	44		Free diaphoresis.
12 "	41		Bowels again opened; talks incoherently.
1 P. M.	42		Right pupils still dilated more than left.
2 "	56	" " m <i>j</i> j.	
3 "	58	" " m <i>j</i> j.	
5 "	60	" " m <i>j</i> j.	
7 "	62	" " m <i>j</i> j.	
9 "	64	" " m <i>ii</i> j.	Constantly talking about her head.
10 "	54	" " m <i>j</i> .	
12 "	43	" " m <i>j</i> .	Quiet, but answers incoherently.
7th, 2 A. M.	48	" " m <i>j</i> j.	Slept for twenty minutes.
4 "	51	" " m <i>j</i> j.	
6 "	49	" " m <i>j</i> j.	
9 "	60	" " m <i>ii</i> j.	
11 "	55	" " m <i>j</i> j.	Quiet.
12 "	47	" " m <i>j</i> .	Slept for an hour and a quarter.
2 P. M.	55	" " m <i>j</i> j.	
5 "	62	" " m <i>ii</i> j.	
7 "	54	" " m <i>j</i> .	
9 "	50	" " m <i>j</i> .	Repeated the podophyllin.
12 "	61	" " m <i>ii</i> j.	Slept for an hour and a half.
8th, 2 A. M.	47	" " m <i>j</i> .	Bowels freely opened.
4 "	53	" " m <i>j</i> j.	Bowels again opened.
6 "	54	" " m <i>j</i> j.	Pupils still of uneven size, though not so marked.
8 "	55	" " m <i>j</i> j.	Asked where she was; says her "head feels queer."
10 "	62	" " m <i>ii</i> j.	
12 "	52	" " m <i>j</i> .	
3 P. M.	53	" " m <i>j</i> j.	Slept for 1½ hours.
5 "	56	" " m <i>j</i> j.	
7 "	57	" " m <i>j</i> j.	Speaks consciously when addressed, but is unwilling to be disturbed; remains quiet.
11 "	63	" " m <i>ii</i> j.	
9th, 1 A. M.	55	" " m <i>ii</i> j.	Slept for 2½ hours.
4 "	55	" " m <i>j</i> j.	
7 "	58	" " m <i>ii</i> j.	
9 "	46	" " m <i>j</i> .	Says she has no headache.
10 "	50	" " m <i>j</i> j.	Pupils of the same size, and contract when exposed to the light. Light produces no pain in the head.
1 P. M.	61	" " m <i>ii</i> j.	
4 "	58	" " m <i>j</i> j.	
7 "	57	" " m <i>j</i> j.	Slept two hours.
10 "	62	" " m <i>ii</i> j.	Has no pain.

As the little patient seemed so much relieved, the medicine was continued in two minim doses every three hours. The bowels were kept freely open by rhei et soda, and on the evening of the 10th all remedies were discontinued, but quiet and a low diet enjoined for several days, under which she recovered her usual health. During this treatment her only food was powdered crackers boiled to a jelly. The urine could not be collected. It will be seen, in the treatment of this case, that the child's tolerance of the remedy was very great; it was borne in larger doses than is usual with many adults.

There was no vomiting from the effects of the remedy, and particular caution was used throughout the whole time of treatment to prevent it, as the excitement caused thereby would probably increase the trouble of the brain, and compel the cessation of the remedy for a time. The vomiting that existed before and during the early part of the treatment was controlled by the sedative action of the veratrum upon the brain.

CASE 2. Pneumo-pleuritis. Miss M. A., æt. 37 years, of a nervous, bilious temperament, good muscular development, weighing 134 lbs.; went to bed feeling slightly indisposed, and was annoyed on rising in the morning with frequent slight rigors. About 10 o'clock A. M. these rigors were succeeded by flashes of heat; the tongue became dry and parched with considerable thirst.

About 2 o'clock P. M. she had a severe chill, which lasted 20 minutes, and which was followed by much fever, with a sense of constriction across the chest, and a teasing, tickling, painful cough. About 4 o'clock P. M. she complained of a severe stitch in the right side, about two inches to the right of, and a little below the nipple. The pain and fever continued to increase, and the cough was troublesome. I saw her at 6 o'clock P. M., Oct. 10th. The pulse was 164, the skin hot and dry, the face flushed; had passed no urine since morning, and had had no operation of the bowels for twenty-four hours.

Upon examination by auscultation I could distinctly discover crepitation over the whole of the right lung; the left was unaffected. The vesicular murmur was heard in front, but not behind on the lower lobe of the right lung. I immediately administered a brisk cathartic, and applied a large hot poultice to the seat of the pain.

Date.	Pulse.	Respirations.	Treatment.	Remarks.
Oct. 10th, 6 P. M.	164	30	Tr. ver. vir. $\mathfrak{m}\mathfrak{v}$.	Passed 2 oz. urine, sp. gr. 1.018, which on standing deposited am. mag. phosph.
7 "	160	30	" " $\mathfrak{m}\mathfrak{i}\mathfrak{j}$.	
8 "	146	27	" " $\mathfrak{m}\mathfrak{i}\mathfrak{j}$.	
9 "	100	27	" " $\mathfrak{m}\mathfrak{j}$.	
10 "	94	27	{ S. morph. gr. $\frac{1}{4}$ Tr. ver. vir. $\mathfrak{m}\mathfrak{i}\mathfrak{j}$.	
11 "	81	23	Tr. ver. vir. $\mathfrak{m}\mathfrak{i}\mathfrak{j}$.	Bowels open; urinated.
12 "	59	20		Pleuritic pain much relieved.
11th, 1 A. M.	57	20		I left with directions to give 2 minims every hour if the pulse rose to 80 or over, but it was not done.
6 "	96	24	Tr. ver. vir. $\mathfrak{m}\mathfrak{v}$.	
7 "	91	23	" " $\mathfrak{m}\mathfrak{v}$.	Pleuritic pain quite severe.
8 "	67	23		Vomited a viscid mucus.
9 "	51	20	S. morph. gr. $\frac{1}{4}$.	Crepitation still heard.
11 "	58	19	Tr. ver. vir. $\mathfrak{m}\mathfrak{i}\mathfrak{j}$.	Pleuritic pain relieved.
1 P. M.	60	19	" " $\mathfrak{m}\mathfrak{i}\mathfrak{j}$.	Free diaphoresis.
3 "	61	20	" " $\mathfrak{m}\mathfrak{i}\mathfrak{j}$.	Passed 14 oz. urine, sp. gr. 1026, acid.
5 "	66	20	" " $\mathfrak{m}\mathfrak{i}\mathfrak{j}$.	Bowels opened.
7 "	63	21	{ " " $\mathfrak{m}\mathfrak{i}\mathfrak{j}$. S. morph. gr. $\frac{1}{4}$.	Expectoration easy.
9 "	61	19	Tr. ver. vir. $\mathfrak{m}\mathfrak{i}\mathfrak{j}$.	Passed 9 oz. urine, sp. gr. 1027, acid.
12 "	67	20	{ S. morph. gr. $\frac{1}{4}$. Tr. ver. vir. $\mathfrak{m}\mathfrak{i}\mathfrak{j}$.	
12th, 3 A. M.	66	18	" " $\mathfrak{m}\mathfrak{i}\mathfrak{j}$.	
6 "	62	18	" " $\mathfrak{m}\mathfrak{i}\mathfrak{j}$.	Passed 11 oz. urine, sp. gr. 1026; bowels opened.
9 "	65	18	" " $\mathfrak{m}\mathfrak{i}\mathfrak{j}$.	No crepitation in upper lobe.
11 "	64	19	{ S. morph. gr. $\frac{1}{4}$. Tr. ver. vir. $\mathfrak{m}\mathfrak{i}\mathfrak{j}$.	Diaphoresis very free; expectoration easy.
3 P. M.	66	17	" " $\mathfrak{m}\mathfrak{i}\mathfrak{j}$.	With the last 2 hours 27 oz. of urine have been passed, sp. gr. 1024.
7 "	67	18	" " $\mathfrak{m}\mathfrak{i}\mathfrak{j}$.	
10 "	66	18	" " $\mathfrak{m}\mathfrak{i}\mathfrak{j}$.	

Upon auscultation at this time I found the crepitation had entirely ceased, excepting at a small circumscribed spot near the base of the lung; expectoration was free and easy, and had no rusty color. The veratrum was continued in doses of three minims every three hours, until the morning of the 14th, when all remedies were suspended, as the crepitation had ceased, and the normal respiratory murmur was heard over the whole lung.

It will be noticed in this case that the veratrum controlled the pulsation, but that it was necessary to combine it with morphia, to control the respirations, and relieve the nervous irritability of the system. It will also be noticed, that as the disease was

brought under control the urine increased not only in quantity, but also in specific gravity.

Any person who treats a case of pneumonia with this remedy, and daily examines the auscultatory signs, will be pleased to find that he can with ease hear every sound, and arrive at a correct diagnosis of the state of the lungs, when without this remedy the sounds will be obscure.

In the relation of the two preceding cases, I have given the treatment and noted the number of pulsations from hour to hour. In the experiments upon animals the number of pulsations in the minute are also frequently noticed. It would seem unnecessary, therefore, in the relation of the following cases, to be thus minute; but as there are cases in which this remedy produces to the friends of the patient, and sometimes even to the physician, alarming effects, I will take one of these as a type and relate it as I have the foregoing.

CASE 3. Pneumo pleuritis. William T., æt. 11 years. A dull boy of leuco-phlegmatic habit, whose mother died of phthisis, complained of a sharp pain on inspiration, in the lower portion of the right lung, and an uneasy, tickling cough. He had rested badly all night, and complained of alternate chills and fever. The skin was hot and feverish, the pulse 165, the respirations 32.

Upon auscultation, crepitation was heard all over the lower lobes of the right lung, and over a portion of the upper lobe of the left lung. He was reclining in a rocking chair, as he said it was hard to breathe when lying down.

About an hour before I saw him he had eaten a bowlful of warm bread and milk, so that I thought it better to give him no purgative medicine until after the food had digested. He passed about half a pint of urine of acid reaction and sp. gr. 1014.

Date.	Pulse.	Respirations.	Treatment.
Dec. 4th, 10 A. M.	165	32	Con. Tr. ver. vir. ℥iij.
11 "	165	32	" " ℥ij.
12 "	164	32	" " ℥iv.
1 P. M.	164	31	" " ℥iv.
2 "	160	32	" " ℥iij.

About 2.45 P. M., I was sent for in haste, as the boy had vomited the bread and milk, which smelt very sour and disagreeable. After vomiting he lay back, very pale and faint. When I saw him about 4 o'clock, the friends were very much alarmed, and had sent out for the first physician they could find; he told them the

boy was dying, and had sent to the druggists for brandy and carbonate of ammonia.

The boy was on his back, very pale, and looking like one who had lost a large quantity of blood. He was bathed in a profuse perspiration, which stood in drops upon his forehead and face; the hands were outside the bed covers, and were cold and very moist; the feet were covered, and were warm, and also very moist; the respirations were 19 in the minute, and the pulse 41, full and soft. Upon being spoken to he said that he felt free from pain, but sick at the stomach if he moved; he requested to be let alone, as he felt well if undisturbed.

I did not allow the brandy and ammonia to be given, but covered him and applied warm bottles to the hands and feet. I gave him nothing. At 5 o'clock the pulse was 44, the respirations 18; at 6 o'clock the pulse was 52, the respirations 18; at 9 o'clock the pulse was 62, the respirations 20.

He had slept for two hours. He passed about a pint of urine, slightly acid and sp. gr. 1026. I left directions to give him two drops of tincture of veratrum viride, every two or three hours through the night, according to the state of the pulse. At 8 o'clock the next morning the pulse was 60, and the respirations 19 in the minute; there was no crepitation to be discovered over either lung.

In this case, both the physician and the boy's friends were much alarmed, and they insisted on giving the brandy and ammonia; and had not the father sustained me, I should have been obliged to leave. I was in error that I did not administer an emetic to empty the stomach before giving the veratrum, and especially when I found that it produced no effect for some hours.

CASE 4. I was called to attend a young woman with pneumonia of the left lung; she was between the eighth and ninth month of pregnancy. Her own pulse on my first visit was 152, and the pulsation of her foetus too fast to count. At the expiration of eight hours, under the use of veratrum viride, her own pulse was 82, and that of her foetus 112. The medicine was continued, and produced slight vomiting, after which her pulse fell to 58, and that of her foetus to 88. On the third day after ceasing the medicine her pulse was 86, and that of her foetus 164.

CASE 5. Acute Rheumatism. J. D., æt. 37 years, of bilious temperament. Has had two severe attacks of rheumatism previous to

the present one. The first attack was treated several years ago by Dr. Warren, of Boston, and the patient was confined to his bed for seven weeks, and recovered from it, but with valvular disease of the heart. The bellows murmur is distinctly heard, and is audible with the first sound of the heart, in the carotids. During the second attack I attended him, and he was confined to his bed for fifteen days, the treatment being principally with aconite. The cardiac trouble was not increased.

Jan. 3, 1857.—The present attack was induced by riding in an open sleigh, and indulging too freely in eating and drinking on Jan. 1st. The pulse was 146, strong and full, the bowels constipated, the urine so scanty as to be almost suppressed, the tongue furred with a reddened margin, the skin hot and dry, the left knee very painful and much swollen, and he declares it to be more painful than ever before.

There was a sense of soreness and constriction over the heart, with an increase in the intensity of the bellows murmur. The urine was acid and of sp. gr. 1.021. I gave two grains of podophyllin rubbed up with liquor potassa and water, and determined to bring my patient as quickly as possible under the influence of veratrum viride, but felt the necessity of watching him very closely, as I feared that with valvular disease of the heart, and consequent obstruction, its pulsations might easily be reduced too low.

I remained with my patient the first eight hours, and gave the veratrum in small and frequently repeated doses, carefully watching its effects upon the circulation. As he came under its influence the sounds of the heart were determined with great exactness, previously the sounds were tumultuous and inappreciable.

When I left, the pulse was beating 80 in the minute, soft, full and more regular; the palpitations had nearly ceased, as well as the sense of soreness and constriction about the precordia. The bowels had been freely acted upon. The urine had passed more freely, the skin was moist, and the knee, which was covered with oiled silk, was somewhat easier. The urine was acid, and sp. gr. 1.023. I left the patient in the care of a very intelligent friend, who administered the veratrum in doses sufficient to keep the pulse about eighty.

4th. During the whole of this day, by means of the veratrum, the pulse never exceeded 80, and twice it was found to be as low as 72. The pain was very much diminished, so that he was enabled to sleep.

The feverish condition of the mouth was much relieved. The bowels were again opened, and the discharge bilious. The urine was more free, of dark color and acid reaction, of sp. gr. 1.027.

5th. The patient is very much easier, and allows the knee to be washed and moved without much complaint; the swelling and redness have diminished.

The pulse during the twenty-four hours was kept about 75, by administering the veratrum every one or two hours, according to necessity. He has slept fully half the time. Urine slightly alkaline, of sp. gr. 1.032.

6th. This morning I found my patient in his dressing gown, and sitting in his easy chair; he walked up and down the room several times; the soreness in the knee was quite gone, but as it existed to a slight extent in the ankle, I concluded to continue the veratrum for twenty-four hours longer, keeping the pulse at a maximum of 80. The podophyllin and liquor potassæ were repeated, and produced nausea and free purging. Urine alkaline, sp. gr. 1.028.

7th. The patient declared himself quite well, and the veratrum was discontinued. He asserted that for four years he had not felt so free from trouble about the heart.

The bellows murmur was much softer in its sound, and as the pulsations were more slow and regular, it could be more distinctly appreciated. (See Case No. 10.) I wished to continue the use of the veratrum for some time, in doses sufficient to control the pulsations, but at longer intervals, to see if it would have any effect on the valvular disease, but the gentleman was unable to remain with me any longer.

I have since then, whenever time and opportunity would permit, used veratrum in investigating diseases of the heart and aneurisms, and those who have not tried it for those diseases will be pleased to find the assistance it renders to a clear diagnosis.

For some four years previous to 1850, I used aconite for most of the cases of rheumatism that came under my care, being instructed in this treatment by the study of Dr. Fleming's most admirable treatise on that plant, but since 1850 I have used veratrum viride in cases of rheumatic fever, unaccompanied with neuralgia, with much better success than aconite.

There are cases of rheumatic fever with more neuralgic difficulty than is common in the disease; in such cases skillful combinations of aconite with veratrum viride have given quicker relief

than either remedy alone. Aconite is a preferable remedy, for that form of neuralgic or irritative rheumatism, unaccompanied by high arterial excitement.

For several years I have treated cases of acute rheumatic fever with veratrum viride, and with better results than with any other remedy, and the case above referred to is not by any means a solitary one upon my note-book, in which the disease was relieved in a few days. With many of these cases I have used morphia in combination with it. With most of them, an alkali has been given at least once in the twenty-four hours, for the purpose as before expressed, of relieving the irritability of the stomach, and preventing nausea and vomiting from the veratrum.

In cases of rheumatic fever, the urine generally becomes neutral, under the proper administration of veratrum viride for forty-eight to sixty hours.

In this, as in other diseases of the heart, the abnormal sounds could be more easily estimated as the patient came under the influence of the remedy; prior to its sedative action a correct diagnosis was exceedingly difficult.

CASE 6. Mammary Inflammation. I attended a stout muscular young woman in her confinement. About the tenth day, from neglect on the part of the nurse, there was much trouble with the breast, and I feared a mammary abscess. In addition to other treatment, I administered a full dose of veratrum viride, and repeated it in an hour. In one hour and three-quarters from the time the first dose was given, free vomiting took place. After the vomiting ceased, the veratrum viride was continued in as full doses as she could bear, and the pulse kept at about 50 beats in the minute all that night.

Early in the morning the child was allowed to nurse. About an hour afterwards I was called in haste, with the message that the child was dying. I found it in a prostrate condition, with a very low pulse. It had vomited many times, and was still retching. A little warm gin and water soon revived it.

The woman's breast was doing well, with much less pain and inflammation. Her sister, who was in the same house, and who had a babe but a few weeks old, promised to nurse this babe also.

I continued with the veratrum, and determined to try if I could get proof of the fact that the medicine had caused the babe's vomiting. A few hours afterwards, I drew out all the milk I could from both breasts, amounting to about 6 oz. I brought away a 4 oz. vial

full, the balance I gave to a kitten. It made the kitten very sick, and caused it to vomit several times. By adding acid I coagulated the milk, and filtered off the whey, which was evaporated. The extract was treated with chloroform, filtered and allowed to evaporate; this was then treated with ether and again allowed to evaporate; the residue was treated with alcohol and evaporated.

To an acid solution of this filtrate, a solution of chloride of gold was added, which produced a turbidity of a yellow color.

With the tincture of iodine, a small brown precipitate was formed. Tannin, and ammonia produced a white precipitate.

All the urine which had been passed for sixteen hours was filtered and evaporated, and the residue treated as above mentioned, with the same results, but more marked. Here then was proof that the veratrum had been absorbed into the blood; had produced its characteristic effects, upon the child and upon the kitten, through the milk, and it was chemically detected in both milk and urine.

The doses administered were, in this case, large; they were long-continued, and produced the characteristic depression of the pulse. The inflammation of the breast was promptly relieved.

CASE 7. Chorea, or Acute Hysterical Chorea.

Anna W., æt. 14 years. I had cured this young girl of chronic chorea about one year and a half ago.

At the commencement of the present attack, the girl was in the country with her mother. After a day of unusual fatigue, spent at a picnic, the child was entertained with ghost stories in the evening.

She slept but little that night, and the convulsive movements of chorea commenced in the right side. During the day the convulsive movements increased, and the child expressed a constant dread of something, and was unwilling that her mother should leave her side for a moment. She slept none during the next night. In the morning, upon her mother leaving her for a minute she screamed violently, and from that time the convulsive movements increased in intensity.

She passed another sleepless night. Dissatisfied with the medical treatment she received, her mother left the country and brought her with her, but with difficulty made the change from the cars to the carriage.

When I saw her she looked in a truly pitiable condition. She had not slept for over sixty hours; it was with great difficulty that she

could swallow a teaspoonful of water ; her eyes were injected, and had a glassy stare ; the pupils were contracted ; the face was suffused ; the pulse thready and very rapid.

The convulsive movements were almost incessant, every muscle seeming to be in perpetual motion.

The hypodermic syringe was in my pocket, and I at once threw into the cellular tissue of the right arm five minims of concentrated tincture of *veratrum viride*. I left for about twenty minutes, to get some morphia and other remedies that I thought I might need. When I returned the child said she felt easier, and there was a slight improvement in her appearance. The same quantity of *veratrum* was repeated in the same manner.

In an hour from the administration of the first dose the pulse was slower and softer, but could not be counted, owing to the muscular movements. She expressed sensible relief, and took a small quantity of farina gruel. About fifteen minutes afterwards, she said she felt sick at her stomach ; large drops of perspiration stood upon her face and forehead ; the convulsive movements continued to grow less, and she said she felt free from pain. She did not vomit, but felt quite sick if she moved.

I assisted her to undress, and by smoothing her head, induced her to keep quite still, and shut her eyes. In two hours and seventeen minutes from the time of giving the first hypodermic injection she was asleep.

I allowed her to sleep two hours, and then roused her to give her some soup with $\frac{1}{2}$ gr. of morphia, and two minims of tr. *veratrum*.

While awake, the convulsive movements were renewed, but in a moderate degree. She soon went to sleep again.

After sleeping three hours she was again awakened, and had a large warm injection administered, as her bowels had not been opened during the attack. The injection brought away a large quantity of hard fecal matter. She remained awake about an hour. I administered three minims of tr. *veratrum*, and $\frac{1}{2}$ gr. of morphia, in an aperient mixture.

She went to sleep at 2 o'clock A. M., and was not awakened until 6 o'clock. The convulsive movements had then nearly ceased.

I continued the *veratrum* combined with iron and quinia for some time. The disease has not since returned.

CASE 8. Facial Neuralgia. I was called to see a stout plethoric servant girl, and was told that she was suffering with acute face-

ache. I found her suffering with acute facial neuralgia, the pain extending over the whole of the right side of the face, with toothache and earache. Her features were quivering with pain; she seemed unable to be quiet for a moment, and she declared that she had not slept for two nights. Her pulse was 147 in the minute. With the hypodermic syringe I injected six minims of the concentrated tincture of veratrum viride, under the angle of the jaw. In two minutes, she said the pain was gone, and only the soreness was left. The girl was almost frightened at the quick relief, and declared it to be a miracle.

I gave her a full dose of purgative medicine, and sent her to bed. The relief was permanent.

CASE 9. Sciatica. A stout laboring man, of scrofulous appearance, whose leg had been broken, complained of acute sciatica. I injected with the hypodermic syringe five minims of concentrated tincture of veratrum viride into the popliteal space. The relief was almost immediate, and continued nearly five hours. As the pain returned, the same dose was repeated with like effect, the relief lasting four hours. The same dose was again repeated, but with the administration by the mouth of two grains each of pulvis ferri and sulph. quinia every hour. The pain did not return.

During the first nine hours the pulse decreased 72 beats in the minute; there was no vomiting, but much nausea.

CASE 10. Valvular Disease of the Heart. (See Case 5.) E. J., æt. 38. A stout muscular laboring man, who had until within a few months been a sailor. He has been living for the past two months in a dark unventilated basement.

When I was first called to see him, he was suffering with the first stage of pneumonia, which was plainly diagnosed by the physical signs. The dyspnoea was very painful. The pulse was wiry, intermittent, and too rapid to be counted. On applying the ear over the heart, a murmur was heard, but with which sound it was impossible to determine; there was also distinct intermission with every few beats of the heart; this, with the murmur, could be easily distinguished upon the opposite side of the chest.

He said he had not felt as well as usual since he had lived in this place, and attributed it to the want of sea air rather than to the dark, damp, and unventilated condition of his room.

About four years previous to his present sickness, he had a very severe attack of acute rheumatism, which, as the doctor had told him, had left him with disease of the heart; but it had not troubled him to any very great extent.

As the pulsations were so exceedingly rapid, and as there was probably organic derangement of the heart, I put him with other treatment upon the use of moderate doses of *veratrum viride*, to control the circulation, and to enable me to ascertain the cause of the intermittent pulsation and cardiac murmur. By the use of the *veratrum*, the pulse was reduced in twelve hours to about 60 beats in the minute, with an intermission every eighth or tenth beat.

The *veratrum* was continued until the pulse was about 50 in the minute, the murmur could then be heard very distinctly. The diastolic impulse was feeble and irregular, followed by a purring thrill that was heard distinctly towards the apex of the heart: this, from the slowness of the heart's movements was heard quite distinctly from the louder murmur that followed the systole. This systolic murmur could be heard by applying the ear over the right lung, especially beneath the clavicle, but its greatest intensity was at the base of the heart, and also in the carotids, and became less easily distinguishable towards the apex.

By the slow action of the heart these two sounds could be separated, and heard with great distinctness; the one at the apex, and the other at the base of the heart. They denoted valvular disease with regurgitation in both the mitral and aortic valves.

As I have before stated in general terms, *veratrum viride* in these cases of disease of the heart is of special value, not only in the treatment, but also in enabling the physician to arrive at a correct diagnosis. It lessens the irritability of the organ, and thus gives character to the rhythm, and evidently from the volume and regularity that it gives to the pulse, there is a more complete contraction of the chambers of the heart.

Without the use of *veratrum viride* I could not have made this diagnosis; and although I could not by the knowledge of it restore the integrity of the valves, I could and did for some time, by proper care, prevent an increase of the difficulty.

After the danger of the pneumonia had passed, my first care was to remove him to a light, well-aired room, and as soon as possible put him on the use of hæmatic remedies, with small doses of *veratrum viride*, and a plain nourishing diet, so as to get the

blood into a healthy condition, and thus prevent the irritability induced by impoverishment.

Not liking a life on shore, he again went to sea. I saw him after his return from two voyages; but during the third voyage he fell dead from the rigging of the ship.

CASE 11. A woman aged 65 years had frequently sent for me to relieve her of urgent dispnœa, which was supposed to be asthmatic. The attacks were generally induced by bursts of ill temper, or by fretting. I had used several remedies, but the tincture of veratrum viride gave her more permanent relief, and was at last the only remedy used.

The present attack was caused by grief on receiving news of the death of a child. The dispnœa was painful, the respirations were very frequent, the pulse thready; there was great thirst, and frequent fainting fits. She died before I arrived, as the friends said, of suffocation.

On a post-mortem examination ten hours after death, the lungs, heart, stomach, and kidneys were found perfectly healthy; but on closely examining the lungs to ascertain if there was any change in their structure, caused by the frequent attacks of asthma, I found that the lining membrane of the pulmonary veins was covered in many places with large patches of opaque substance, somewhat redder in color than the lining membrane of the vessel.

These patches were of different size, some of them occupying more than one-half of the calibre of the vessel, others quite small and occupying distinct points.

The larger patches were thicker than the small ones, and on some of them, distinct lamellæ could be peeled off. As though their presence upon the inner coat of the vessels was not impediment enough, their favorite seat seemed to be just beyond where the two vessels united; in this place they were larger and thicker than elsewhere.

This I suppose may be called hypertrophy of the lining membrane of the vessels. It existed to a great extent over both pulmonary veins, and several patches of large size were found in the aorta, the largest just beyond and almost in connection with the aortic valve.

There was no bony deposit in any of them, and I do not know if there would have been bony depositions, if the patient had lived longer.

The color of those in the aorta were more of an opaque grayish-white, while those in the pulmonary veins were reddish and apparently much congested.

The result of the post-mortem fully accounted for the benefit derived from the use of the veratrum viride, in preference to other remedies, as its sedative action tranquillized the circulation, and, as we have seen in the experiments upon frogs and bats, dilated the vessels.

CASE 12. L. J., æt. 8 years. I found this child very ill with double pneumonia, the pulse was wiry and too rapid to count. I gave her veratrum in large doses, but it produced but very little effect upon the pulsations or respirations. She was partially unconscious, throwing her arms wildly about her, constantly smacking her lips, and straining as though she wished to swallow something. She remained in this unpromising condition without relief for twenty-four hours, and with no diminution in the frequency of the pulse, although very large doses of veratrum were given. Feeling that there was some cause of irritability in the stomach, I gave her a drachm of sulphate of zinc. She almost immediately vomited a large quantity of yellow, viscid, ropy mucus, and with it *two large worms* (*ascaris lumbricoides*).

Without the administration of any more veratrum, within one hour from the removal of these worms from the stomach, the pulse was beating 82 in the minute, soft and compressible, *and was reduced at least 100 beats in the minute*. The countenance was pale, the skin moist, and the respiration easy.

The child became suddenly alarmed, and screamed, and kicked off the bedclothes. Another large worm, $7\frac{1}{4}$ inches in length, was found alive in the bed just passed from the anus. From this time the child did well, and in three days was dressed and sitting up.

We have many instances to convince us that the presence of tænia, or lumbricoides will greatly derange the action of the heart; but have we sufficiently noted that they prevent, retard, or interfere with the action of medicine?

DIVISION SECOND.

THERAPEUTIC APPLICATION OF VERATRUM VIRIDE IN TYPHUS AND
TYPHOID FEVERS.

It has been frequently asserted by many who have written on this remedy, that it is a *specific* in these fevers, and that with it they could "cut short the fever in from twenty-four to forty-eight hours." We must confess that such persons know its uses better than we do, or else that they are mistaken in their diagnosis, for we have never met with such success.

It is true that with this remedy the heart's pulsations can be controlled, and that so long as its use is persisted in "the fever" is moderated; but as the fever and arterial irritation are but symptoms, and caused by a morbid material within the system, and are not the disease itself, or the cause of the disease, we cannot see how it should by its sedative effect "cut short the disease in from twenty-four to forty-eight hours."

There are few diseases of equal severity wherein the circulation is so little roused to excessive action, as in typhoid fever, the character of the pulse being one of irritability, or at least of asthenic inflammation rather than of active inflammation.

It may, perhaps, seem strange to some that a remedy that is used with such marked success in sthenic diseases should under any circumstances be recommended for diseases of a directly opposite character. But in sthenic diseases it is used in large doses, and its power is promptly spent in controlling the excessive action of the heart and arteries, and its neurotic or nerve action is not so much noticed, because it is secondary in importance; but in asthenic diseases, if judiciously administered in small doses, and kept within proper limits, its nerve action is more perceptible, quieting the irritability of the nervous system, and the irritable state of the circulation, permitting the pulse to become fuller in volume, and more normal in character.

In one disease we have excessive arterial excitement and impetuosity of the heart's movements, and we endeavor to control that violent action, and bring back the pulsations to a normal standard; in the other we have nervous excitement with depression, causing the heart's movements to be irritated, weakened, and quickened, producing a continual slow fever; and by quieting that

nervous excitement we lessen the irritability and prolong the systolic movements; in both cases we seek to bring the heart's pulsations to a normal standard, and by so doing we lower the fever, and by this means alone prolong existence.

The consecutive effects of *veratrum viride* are, in typhoid fever, of great importance. In this fever the skin is generally dry, the tongue smooth and parched, and the secretions lessened.

Under the judicious use of this remedy the skin becomes moist, the salivary glands secrete freely, the urine is more abundant, the expectoration is easier and more free; and although the bowels are not acted upon by it, the irritability of the intestines is lessened, and therefore there is less necessity for laxatives; and if they are given they are required in smaller doses.

In one respect, I believe this remedy acts in a directly opposite manner to narcotics, for whereas narcotics suspend proper oxidation and elimination, this increases the oxidizing power of the system.

As grave and serious alterations in the structure of the muscular tissues of the heart frequently take place in typhus fever, and as these morbid changes are similar in character to those which result from sthenic congestion and inflammation of the muscular tissues of this organ, it is exceedingly important that the physician should closely watch the peculiarities of the action of the heart, and devote special attention at each visit to its impulse and intonations.

There are numerous instances in typhus fever where, early in the disease, the heart's action becomes exceedingly feeble, and its sounds denote that the muscular structure of the organ has become enervated, and that the propulsive power is weakened, independently of the insufficiently stimulating character of the blood.

Even the best authorities in these cases have not yet decided that this change is not the result of inflammatory action, and although we know that the stimulating plan of treatment is absolutely necessary, for by its means only can we maintain the proper force of the heart, we find that the irregular, frequent, and true asthenic pulse becomes more regular, less frequent, and of better tone and energy by the proper and careful administration of small doses of *veratrum viride*.

In many cases of typhoid and typhus fever there are *periods* when this remedy is of very great value, as it steadies the action of the heart by lessening its irritability, insures the complete contraction of its chambers, and thereby gives volume to the pulse

and regularity to its intonations; it also acts favorably by its consecutive eliminative power.

But it is no "specific" for typhoid fever (as Norwood and others assert), "breaking up many cases at the very outset," and "curing others in from 24 to 48 hours." It is to be regretted that any physician should make so irrational an assertion.

In these diseases it should only be administered in small doses, as large ones produce excessive prostration, and thereby injure rather than benefit the patient.

IN PHTHISIS: ALSO AS A MEANS OF DIAGNOSIS IN DISEASES OF THE LUNGS AND HEART.

I will not speak of the therapeutical applications of veratrum viride in consumption, for from the indications already detailed for its use, its value in the general treatment may be readily inferred.

In the *diagnosis* of the meagre and subtle signs, by which this insidious disease first makes known its approaches, I have found veratrum viride to afford me the most essential service, rendering clear and easily recognizable signs which, without the previous preparation of the patient by this remedy, were obscure and of difficult diagnosis.

When the tubercular deposits have made large encroachments upon the lung, and loud mucous rales betray the existence of a cavity, there is no difficulty in making a diagnosis that at this stage must be synonymous with a fatal prognosis.

But without the previous preparation of the patient, by this remedy, the prolonged expiration, faint crepitation, or slight harshness of respiration, the frequent complications of functional disturbance of the heart, the extent to which its sounds may be heard and its murmurs mask the true signs from the lungs, or other causes tending to obscure the respiratory murmurs, exercise a most perplexing influence, and prevent or render difficult a clear diagnosis at precisely that stage, when treatment may reasonably be expected to be of some avail. It is these early signs that are likely to escape detection, to be overlooked or rendered obscure, and great caution needs to be exercised to discriminate between functional disturbance and organic lesions.

To properly discriminate these differences, I have, for several years, been in the habit of preparing my patient, whose heart or lungs I wished to examine, by the administration of small but frequently repeated doses of veratrum viride, and have thus been

enabled to easily attain a *certain* knowledge of the signs of the disease at an early period, when, without this preparation, a correct diagnosis could be arrived at *only* with great trouble and most patient investigation.

It will be found of inestimable advantage in the diagnosis frequently required by *Life Insurance Companies*. I have before mentioned it as a means of diagnosis in pneumonia and valvular disease of the heart. (See Cases 2, 5, 10.)

DIVISION THIRD.

THERAPEUTIC APPLICATION OF THE RESINOID OF VERATRUM VIRIDE.

CASE 1. Surgical Fever. J. B., ⁶et. 34 years. A stout muscular mechanic, upon whom a surgical operation had been performed for the removal of a large tumor. As reaction came on he became exceedingly uncomfortable, with all the symptoms of surgical fever.

The fever commenced soon after my morning visit, and as I was not informed of it, I did not see him again till the next morning.

The pulse was then 165, and the respirations 30. I commenced the use of the resinoid tincture of veratrum viride alone.

Date.	Pulse.	Respirations.	Treatment.
June 19th, 10 A. M.	165	30	Resin. tr. ver. vir. ℥v.
11 "	160	30	" " ℥iv.
12 "	162	30	" " ℥v.
1 P. M.	147	29	" " ℥iij.
2 "	138	26	" " ℥iij.
3 "	125	25	" " ℥iv.
4 "	97	24	" " ℥iij.
5 "	95	25	" " ℥iv.
6 "	79	20	" " ℥iij.
7 "	71	20	" " ℥iij.
9 "	64	20	" " ℥iij.
11 "	65	20	" " ℥iij.
20th, 1 A. M.	64	20	" " ℥iij.
5 "	76	20	" " ℥v.
8 "	72	20	" " ℥v.
10 "	63	20	" " ℥iij.
12 "	64	21	" " ℥iv.
4 P. M.	68	20	" " ℥iv.
7 "	64	20	" " ℥iij.

From this time he was left in charge of his friends, with directions to give him four minims of the resinoid tincture every four hours; this treatment was continued for three days longer, during which time the pulse did not rise above 75 in the minute. There were no unpleasant symptoms afterwards.

CASE 2. Pleuritis. Mrs. N. R. When I first saw this patient, she had acute pleurisy of the left side.

Time.	Pulse.	Treatment.
11 A.M.	132	Resin. tr. ver. vir ℥v.
12 "	130	" " ℥v.
1 P. M.	121	" " ℥v.
2 "	120	" " ℥iv.
3 "	98	" " ℥iv.
4 "	96	" " ℥iv.
5 "	92	" " ℥v.
6 "	72	
7 "	60	" " ℥ij.
8 "	54	

At 8½ o'clock she attempted to get out of bed, but the moment she rose up she was seized with nausea, and fainted. Upon recovering from the fainting fit she vomited twice, and then lay back in bed in a quiet dreamy state. At 11 o'clock the pulse had risen to 62.

Three minims of the resin tincture were continued every two hours until 7 P. M. of the next day, when she was entirely well and free from pain.

CASE 3. Acute Bronchitis. I was called to see a young man æt. 22, suffering with extreme dyspnoea. He was propped up in bed, and endeavoring to gain some relief by breathing the vapor from a pitcher of boiling water. The efforts at respiration were painful to witness, and the expression of the face and the position assumed were indicative of extreme suffering. He could speak but a few words at a time, but begged me earnestly to give him quick relief, or he should die of suffocation.

Upon percussion I found the chest resonant, but upon listening I could hear no vesicular respiration; the air entered the lungs slowly, and seemed to leave them more slowly and with effort, causing a harsh sibilant sound. There was much fever, with a small, frequent, irritative pulse, which could not be counted.

I gave five minims of the resin tincture of veratrum viride, and repeated the dose every hour until four doses had been given. Before the third dose had been given, the pulse could be counted 138 in the minute, and after the administration of the fourth dose it was 129.

The same dose was continued at intervals of two hours, and the respirations gradually became fuller and less labored. He could

not lie down, but slept considerably while propped up in bed during the night. The same dose was continued at intervals of two and a half hours through the next day with very marked relief, so that he could with high pillows lie down comfortably. This dose kept the pulse at between 80 and 90 beats, but produced no vomiting.

On the evening of this day slight crepitation could be heard in many spots, and the next day crepitation could be heard over the whole lungs, and there was slight expectoration.

The remedy was continued at longer intervals, and on the eighth day he was out attending to business.

Veratrum viride is, probably, more serviceable in cases of acute bronchitis than in any other disease. In nearly all instances it entirely supersedes the necessity for venesection, in fact, it relieves the physician from all necessity for discussing the propriety of venesection.

Its first effect alone, of lessening the rapidity of the circulation, does all in this inflammation of the mucous surfaces that could be effected by venesection, for by diminishing the quantity of blood sent to the lungs, arterialization can more fully take place, and the painful sense of suffocation is thereby relieved.

As a sedative it relieves the painful dyspnoea, and as an expectorant it removes the consequences of the inflammation. Venesection produces debility, which, at times, in this disease cannot be recovered from, whereas *veratrum viride* produces no debility.

CASE 4. *Delirium Tremens*. During the last seven years, I have recorded in my note-book the results of the treatment of many cases of *delirium tremens* with *veratrum viride*. In thirteen cases of this disease the treatment was with resin tincture of *veratrum viride* alone. I have succeeded well with this treatment, and of these thirteen cases not one proved fatal.

The plan of treatment has usually been to give four, five, or six minims every hour until the pulse was reduced to 60 or 70 beats in the minute, and until nausea was induced; then a smaller dose was continued at longer intervals. These are always troublesome cases that require frequent personal attention.

In some of these cases the same treatment has been adopted until nausea and vomiting have been induced, then morphia in $\frac{1}{4}$ gr. doses has been administered as often as found necessary, and have

produced a better effect than a grain of morphia would do without the previous preparation by veratrum.

The veratrum is usually continued for several days in small doses. In two cases recorded it was continued for ten days after the delirium had ceased. It relieved the irritable state of the mucous membrane of the stomach, and restored the appetite.

I have frequently relieved the uncomfortable feeling following a debauch by small and frequent doses of veratrum viride and bicarbonate of potassa.

I have found the resinoid tincture of veratrum viride of more service than any other medicinal preparation in producing that perfect relaxation so necessary in taxis for hernia, and in the passage of a catheter for stricture.

DIVISION FOURTH.

GENERAL SYNOPSIS OF THE ALKALOID VERATRIA FROM VERATRUM VIRIDE.

By reference to the second section of this monograph, it will be seen that the alkaloid veratria, obtained from veratrum viride, is identical in its chemical reactions to that obtained from veratrum album, and from veratrum sabadilla.

By reference to the third division of the third section it will be seen that the physiological and therapeutic actions of the various alkaloids are very similar.

In what particular principle of the plant, then, resides the difference in the therapeutic action of the several species of this genus?

We see, from the written history of veratrum album, for many centuries, that it differs in its physiological and therapeutic actions from veratrum viride.

We observe from the few cases reported in the last division¹ that the resinoid principle of the plant possesses nearly the same physiological and therapeutical action as the *whole* plant, and that, therefore, the medicinal action of the plant is due more to the several resinoid principles, which exist in considerable quantities, than to the alkaloid, which exists in a very small quantity.

If the amount of alkaloid alone, which we obtain from a given quantity of the tincture, was dissolved in an equal amount of men-

¹ A very large number of cases might have been added to this division, but I feared that by giving more I should make the work prolix.

struum to which it exists in the tincture, we should find that the small dose administered would produce no noticeable impression.

It is probable, however, that all alkaloids exist, in a natural combination, in larger proportions than we obtain them by chemical means; but if this one existed in double the quantity obtained by isolation, it would still be insufficient, in the small doses that are given, to produce the effects that are noticed by proper medicinal doses.

We have in other medicinal agents alkaloids, which, when in combination with the whole medicinal virtues of the plant, exercise but little influence, but when isolated and given in full doses differ from the action of the entire virtues of the plant.

Aconitina and codeia may be mentioned as examples. We see as much difference in action between veratrum and veratria. When given in doses sufficient to produce a noticeable effect, it does, to some extent, act as a direct sedative to the heart, but it does not act uniformly in this manner, as the tincture of the root or the resinoid does; it has a more mixed action upon the heart—an action somewhat resembling the effect of aconitina, and this is frequently an irritant action, and is more plainly noticed if given in large doses.

The pulse, by full doses of veratria, is first depressed, but afterward the irritant action follows and the pulse increases in frequency, and this, as we have seen in the cases mentioned, is not the action of the tincture of the plant, nor the resinoid.

The question then seems to be settled, that the alkaloid is not essential to the complete sedative action of the plant, and that the resinoid principle, entirely freed from the alkaloid, is equally reliable, as an arterial sedative, as the tincture made directly from the root.

Of the external uses of the alkaloid I do not feel that I have sufficiently elaborated it to speak at present.

I have used it many times, but prefer the alcoholic extract of the plant mixed with glycerine. I have not, with either, met with the same success that Turnbull relates.

SECTION FIFTH.

SUMMARY OF THE PHYSIOLOGICAL AND THERAPEUTIC
ACTION OF VERATRUM VIRIDE ON MAN.

DIVISION FIRST.

GENERAL ACTION.

THE following observations are given as the results of a very large number of experiments and therapeutical applications, but it is unnecessary to relate these in detail, as I have done in giving my experiments on animals, and in cases of various diseases in the human subject.

The true therapeutic properties of *veratrum viride* were not understood before Professor Tully's investigations, and Dr. Osgood's publication; nearly all who wrote on it before that time classed it with its European congener, and used it chiefly in chronic complaints.

Dr. Osgood pointed out a class of diseases in which it seemed to produce the same general effects as the *veratrum album*, but with more certainty and greater safety; but he demonstrated also that, though it was alike in some of its effects, it differed very materially in others.

One of the characteristic effects of *veratrum album* is the uncontrollable purging it frequently produces if given in full doses, causing whitish, frothy, abundant, and frequently bloody evacuations, which leave the alvine canal in an irritable condition. On the contrary, *veratrum viride* produces no purgative effects when given in medicinal doses by the mouth.

Dr. John Ware, of Boston, administered it in thirty cases, and in not one was it clear that purging was produced. Such is the testimony also of Osgood, Norwood, Frost, and many others who have used it freely. I have carefully watched over one thousand cases for this effect, and I have never seen a case in which I was satisfied that purging was produced by this alone, when given by the mouth,

but I have seen several cases of constipation depending upon an inflamed or irritable condition of the intestines, relieved by it in somewhat the same way that sedatives or opium will relieve these cases. I have frequently used it in inflammatory states of the system, as an adjunct to a purgative, to overcome the irritability of the muscular fibre of the intestines, and to quiet arterial excitement.

In this way it assists purgative medicines, and causes their more rapid action. It was in this way that it was used in the old secret remedy called "Coit's pills."

The peculiar and characteristic effect of *veratrum viride* is its action upon the pulse. It is a reliable and powerful arterial sedative. With it the force and frequency of the pulse can be controlled almost at will.

I have frequently found the pulse that was too fast to count—irritable and thready—reduced in the course of a few hours, by moderate doses, to 70 beats in the minute, and by larger and more frequently repeated doses to 40 or 35 beats in the minute, and that with no danger to the patient, for when the remedy was discontinued, the pulse gradually regained its healthy beat, provided the remedy had been used long enough to subdue the inflammation.

It lessens both vascular and nervous action, and at the same time relaxes the muscular system, and renders the respirations easier and somewhat slower. It is particularly applicable where there is a great excess of arterial and nervous excitement on account of some sudden or acute disorder without any great depression of the vital powers, in sthenic inflammations generally, and surgical fevers, and especially those that are sudden and quick in their course, and require to be arrested promptly and quickly.

It is, if possible, more serviceable to the surgeon than to the physician, for in those cases of surgical or traumatic fever, resulting from operations or injuries, its specific effect in arresting arterial and nervous excitement is particularly required, and its effects in quieting and reducing the pulse, and keeping it at or below the healthy standard, until the cause of the excitement subsides, or is removed, frequently prevents serious results.

After operations upon the arteries for aneurisms or other diseases, the action of the heart can be lessened or controlled, and by this means secondary hemorrhage may be prevented. Too great vascular excitement, and a derangement of the circulation, resulting from the obliteration of large arteries, frequently supervenes after operations, preventing a healthy restorative process from going on.

Any means which will control this excitement without the necessity of bleeding (which generally weakens the patient, and thus retards recovery) will assist in the recovery by subduing irritation, and by allowing the system gradually to regain its energies, and accommodate itself to its new relations.

This remedy, in these instances, produces but a transient effect, but may prevent lasting injuries, and prove of permanent benefit by relieving temporary exigencies.

It is also an invaluable assistant in the diagnosis of cases of disease of the heart or lungs.

In a great many instances in which this medicine is indicated, but one simple rule is necessary in its administration, viz: *increase or diminish the dose according to the state of the pulse.*

If it is necessary at the outset of a disease to reduce the pulse from 150 to 60 beats in the minute, and keep it at that number for several hours, give the remedy in as full doses as the patient will bear without disturbance to the stomach, and repeat it at short intervals until the object is attained; the dose can then be given at intervals of three or four hours, according to the state of the pulse.

There are instances in which a prompt arterial sedative is required, and in which vomiting will do no injury; in such cases it may be given in full doses of three or four minims, and at intervals of half an hour, until vomiting is induced; the pulse will frequently, in such instances, sink lower than required, occasionally as low as 50, 40, or 30 beats in the minute: this need occasion no alarm, for it is only necessary to suspend the use of the remedy for some time, and not begin its use again until the pulse returns to the point at which it is intended to keep it. To obviate any unpleasant effects, the medicine may then be resumed in small doses, and repeated at longer or shorter intervals, according to the influence it exerts upon the pulse.

If it is desirable to induce vomiting, let warm diluents accompany the remedy, but should it be necessary to avoid it, give the patient no more fluid than is absolutely required, and administer the medicine in small and frequent doses, carefully watching the pulse. But do not be deceived in the state of the pulse; recollect that position will have a great influence, and if the pulse be found at 60 while recumbent, it will be found at 65 or 70 a few minutes afterwards, if the patient should be in a sitting position, and in a

standing position at 75; and for a short time after the change of position the pulse will have a different character.

In the recumbent position the force of the pulse is always greatest, and the frequency the least, so that we have the greatest strength and the least frequency at the same time. Faintness may be induced if the pulse is reduced too much while in a recumbent posture, and the patient be allowed suddenly to stand up; in fact while under the influence of this medicine the patient should not be permitted to change his position suddenly. Let then the position be the same at the different times of examining the pulse, or make due allowance for the change.

Even in health sleep has a marked influence upon the pulse, and during the administration of this medicine, sleep produces a great change. I have found the pulse to fall 20 beats in the minute within a quarter of an hour, merely from the patient falling asleep. In such cases the respirations become slower and full, the pulse loses its irritability, becoming soft, full, and easily compressible; the secretion from the skin is very abundant, becoming cold and clammy if there has been much nausea or prostration.

In this state there will be no difficulty in arousing the patient, as there is when narcotics have been administered.

DIVISION SECOND.

ITS ACTION ON THE VASCULAR SYSTEM.

Veratrum viride exerts a *sedative* influence upon the vascular system. In whatever medicinal doses it is administered it regulates the force and frequency of the pulse. Whether it is given to the chlorotic female, with a pulse of 120, thin, wiry, and irritable, or to the threatened apoplectic, with a full and bounding pulse, or in fatty degeneration of the heart, where the pulse is slow, easily compressible, wanting in tone, it alike regulates the force and frequency of the pulse, and exerts a sedative influence on the heart's action, bringing it by proper doses to the normal and healthy standard.

If the dose administered be small and frequently repeated, the pulse may be reduced from 120 to 80 beats in the minute; if a larger dose be given it may be reduced to 50, but it does not become irregular or intermittent, unless the remedy is pushed beyond the point of propriety.

In poisonous doses the pulse loses its rhythm and strength, becoming very slow and compressible, sometimes allowing an intermission of several seconds to pass. It is unlike aconite in its effects, for, to a certain point, aconite reduces the irritability and frequency of the pulse; but if the dose be pushed beyond this point, the pulse becomes small and weak, but more frequent. I have several times seen the pulse quickly increased from 80 to 120 by an increased quantity of aconite; but I have never seen the same effects from *veratrum viride*.

With most other remedies, when the heart's pulsations have decreased in intensity, there seems to be an effort at compensation, and they cause an increase in frequency of its pulsations. This is not the case with *veratrum viride* in medicinal doses, for the heart seems unable to acquire intensity, and is too thoroughly subdued to attempt the compensative effort of frequency. As it decreases in frequency it increases in fulness and regularity, and we find that the patient does not lose strength, but gains tranquillity.

In poisoning by this agent there is a labored effort of the heart; the pulsations are sometimes increased in frequency, and are intermittent, and found to vary every few minutes.

Whether in all primary inflammations it is a mere reduction of the frequency of the circulation and of nervous excitement that is needed, or an actual change in the character of the blood as well, it is not my province to discuss at this time, but every one's experience must give him some evidence on this point.

We have seen and shall find hereafter in the experiments performed for this purpose, that this medicine exerts an action on the blood, and that action is of an antiphlogistic character, because it alters the blood by elimination; but does it act as some of the saline medicines do as a solvent of fibrin, either while within the veins or out of the body?

It has been demonstrated by Simon, and confirmed by Bird and others, that tartarized antimony and many of the salines have the power of diminishing the amount of fibrin in the blood, and by this means relieve the tendency to inflammation. *Veratrum viride* has not the power of dissolving fibrin when out of the body, nor does it produce the effects of antimony and salines upon the blood within the veins, by diminishing its plasticity and rendering it liquid and incoagulable.

Its action is principally a vascular sedative, producing, as we shall see, a change in the blood itself, and a peculiar effect upon

the heart, arteries, and veins. I have taken a small quantity of blood from a person of full habit, laboring under a mild attack of pneumonia, and who had been for twenty-four hours fully and decidedly under the influence of *veratrum viride*, with a pulse at 50. The blood coagulated and had a tolerably healthy appearance.

This would not be conclusive proof, because in diseases of an inflammatory character the amount of fibrin in the blood is increased; I repeated this experiment, therefore, upon dogs in health, the results of which may be seen in Experiments XXIII., XXIV.

In the 4th Section of this work we have given many instances of the therapeutic uses of the plant; but we have also given instances where it was of inestimable value as a means of diagnosis, and where organic lesions of the vascular system were readily detected while the patient was under the influence of the medicine, that could not be definitely diagnosed, or at least, could be discriminated only with great difficulty from functional disturbances without preparing the patient by this remedy.

By the assistance of *veratrum viride* we have in many instances been enabled with ease definitely to determine between organic and functional disturbance of the heart. There are instances in which it would be of value as a means of diagnosis in aneurisms. Though this is the best, I do not claim that it is the only sedative that can be used for its diagnostic properties; *digitalis*, tartarized antimony, and others may be used, but I am not aware that any of these remedies were resorted to for such purposes previous to my recommendation.

DIVISION THIRD.

ITS ACTION ON THE RESPIRATORY SYSTEM.

The action of *veratrum viride* on the respiratory system is secondary to that on the vascular and nervous system. It reduces the frequency of the respirations somewhat in proportion to the effect it has upon the circulation, and not always in proportion to the dose administered.

Where the circulation has been very rapid, and the respirations consequently frequent, we find that as the circulation becomes more normal, the respirations decrease in frequency; but, unlike opium, this remedy does not reduce the respirations much below

the normal standard. Its effect is *sedative*, not narcotic, on the respiratory nerves. Thus it is expectorant, increasing the secretion from the pulmonary mucous membrane; first, by its action upon the blood and bloodvessels; and secondly, by lessening or subduing irritability of the lungs.

Owing to the diminished circulation and respiration, the temperature of the body is decreased while under the full influence of the veratrum.

As a means of *diagnosis* in *pneumonia*, *bronchitis*, *pleuritis*, and in *incipient phthisis*, I have spoken fully in Section Fourth.

DIVISION FOURTH.

ITS ACTION ON THE NERVOUS SYSTEM.

Veratrum viride exerts a sedative effect upon the nervous system, but whether it produces its primary effect upon the vascular or the nervous system, we will consider when we discuss its *modus operandi*.

In medicinal doses it simply allays, controls or deranges nervous influences, but in poisoning doses it destroys them.

Though it seems to exert but little action upon the *mind*, it makes the individual languid, quiet, disposed to sleep, and unwilling to be disturbed; and this effect is marked where it has been given in small and frequently repeated doses, controlling the heart's action, without producing nausea and vomiting; but it is most noticeable where it has been taken in large and poisonous doses.

These effects succeed its emetic action. Even in these cases the mind is clear, or but little confused; and although by diminishing the rapidity of the supply of blood to the brain, it produces vertigo, especially on moving, it seldom causes headache. In full doses it undoubtedly diminishes sensibility, but I have never noticed any marked impairment of either sight or hearing when administered to man. In animals I have noticed both.

Its effects upon the brain temporarily resemble those produced by loss of blood, and they are undoubtedly produced by the sedative action on the circulation. Under the full influence of the medicine a change of position will produce vertigo or even syncope. It frequently induces sleep; not by any narcotic action, but by relieving congestion, irritability, and pain.

DIVISION FIFTH.

ITS ACTION ON THE MUSCULAR SYSTEM.

In moderate doses *veratrum viride* produces a relaxation of the muscles, and in fuller doses, a feeling of weakness and prostration. This effect soon passes off, and with a return of the normal circulation there is a return of muscular strength; it produces prostration rather than exhaustion.

We have before stated, when treating of its physiological action on animals, that in full doses it paralyzes both the voluntary and involuntary muscles, and in those cases where death is caused by it, the fatal result is produced by paralysis of the heart's action. One of the most remarkable effects of its action, in poisoning doses, is that the muscles have so lost their contractile power that they do not act well under the stimulus of galvanism.

This loss of power of the muscular system, and its subsequent results upon animals poisoned by *veratrum*, I noticed some years ago. During a series of investigations upon *veratria*, obtained from *veratrum album*, and from *veratrum viride*, I noticed that animals poisoned with the alkaloid from either plant lost all power over the locomotive muscles, and that the galvanic current did not exercise the same convulsive movements after death from this as it did in cases where death was produced from other causes.

It has been asserted that this remedy always causes dilatation of the pupils. Such is not my experience; it does sometimes dilate, but generally it merely fixes the pupil, giving it the appearance of dilatation because it is kept in the centre, without motion, owing to the loss of power in the recti muscles.

DIVISION SIXTH.

ITS ACTION ON THE SECERNING SYSTEM.

Veratrum viride exerts a very marked influence on the secreting organs. It augments the secretion from the pulmonary mucous membrane, and increases the expectoration in the first, second, and even third degree of its operation, but in the fourth degree there is no longer power to expectorate, so that the increased secretion is an additional source of danger.

Upon the urinary secretion I have not been able to satisfy myself that, in health, it either diminishes or augments the quantity. As the amount of the secretion differs so greatly at different times, and under different circumstances, a long series of close observations would be necessary to decide upon its effects.

In cases of dropsies, resulting from obstructed portal or cardiac circulation, with a frequent and irritable pulse, there is no article in the materia medica that produces so copious a discharge of urine. But this is a mere secondary effect, caused by subduing the heart's labored action. As the congestion is lessened, the kidneys carry off the excess of serum, and absorption of that already deposited takes place. In most cases of disease it increases the specific gravity of the urine. (See Cases 2 and 5.)

But the chief secerning effect of *veratrum viride* is upon the skin. In whatever doses it is taken its effects are plainly manifest. In small doses it produces a pleasant comfortable moisture, but in large doses the diaphoresis is free and abundant, the perspiration standing in large drops upon the brow and face. If full doses of the remedy are given, and the person is warmly covered, the diaphoresis is free, and the skin feels moist and comfortable, but any portion of the skin which is left uncovered is bathed in a cold, abundant, clammy sweat. And herein is one of its most valuable uses, for in some cases of fever, where the skin is harsh and dry, a favorable crisis may be produced by causing an abundant diaphoresis.

It early acts as a sialagogue, freely increasing the secretion of saliva. It should not be forgotten that amongst the functions of the salivary glands the rapid and copious elimination of fluid that takes place, especially if abnormally excited, does much towards relieving the congested state of the vessels; and its secondary effects, in promoting the absorption going on in the stomach, assists the ultimate removal of a large quantity of fluid by the kidneys.

By these effects, as well as its effects upon the circulation, *veratrum viride* is a true antiphlogistic. By its rapid eliminative action on the glandular system, it causes absorption and disappearance of glandular enlargements.

I have discovered traces of its active principle in the urine, but I do not, on that account, conceive it to be diuretic, but that its diuretic effect is owing to diminished pressure upon the vascular system. *Digitalis* acts as a diuretic in the same way.

When the alkaloid *veratria* was administered to dogs, either by hypodermic injection or by the stomach, the alkaloid was several

times detected in the urine, and the urine produced also the same physiological results when administered to other animals. (See Experiments IX., X., XI.)

It was also detected in the milk of a nursing woman (see Case No. 6), and under the use of the medicine the inflammation subsided. Induration of the lymphatic glands is also relieved by it.

DIVISION SEVENTH.

ITS ACTION ON THE ALIMENTARY CANAL.

Veratrum viride increases the secretion of mucus from the stomach and intestines, and by its nauseating effects produces a continuous sympathetic action on the liver and pancreas. It has no cathartic nor aperient effect upon the bowels when taken by the mouth; but as it lessens congestion and irritability, constipation is frequently relieved by its use.

When injected into the cellular tissue we see that it does act as a cathartic (see Expts. IV. and V. of Div. 2d). In plethoric constitutions it forms an admirable adjunct to purgatives. The *veratrum album*, on the other hand, does act as a purgative when taken by the mouth as well as when injected into a vein or the cellular tissue.

DIVISION EIGHTH.

EMETIC ACTION.

In full doses, 10 to 15 minims of the concentrated tincture, before described, it produces vomiting, and by the first act of vomiting the contents of the stomach are sometimes thrown off without much preceding nausea, the stomach alone seeming to contract upon its contents, and the abdominal muscles and diaphragm remaining comparatively passive.

But the vomiting most usually produced by *veratrum viride* is preceded by nausea, prostration, a marked diminution in the frequency of the pulse, and paleness of the face and lips.

If vomiting from the use of this agent continues long, it frequently becomes spasmodic, and much bile is thrown off, owing to the extension of reflex action to the duodenum and liver; and when bile is thrown off there is more protracted vomiting, more painful nausea, and general prostration.

If the dose be large its effects as an emetic will be certain, strong,

and permanent, and will make a powerful impression on the system. As an emetic it should be used only in those cases where the pulse is strong and full, or where there is phlogistic action; it would be unwise to administer it for its emetic effect where the patient was feeble or deficient in either nervous or vital force. Above all, it should not be given for *its emetic effect* where there is a natural liability to syncope, or where there is disease of the heart.

If the remedy be given in overdoses, the effects described by Osgood are, vomiting, followed by "much ineffectual retching, almost constant hiccough, chilliness, dimness of sight, vertigo, inability to control the voluntary muscles, distress of the stomach, pulse small and creeping." I have seen all these effects from accidental poisoning with this article, but I have never seen such effects when administered in medicinal doses.

If it be necessary to avoid vomiting, and the stomach is sour and irritable, give a little bicarbonate of soda, magnesia, or other alkali; it is necessary to lay much stress upon this, for if the stomach be in an irritable condition, the veratrum will act too harshly, unless checked by the previous administration of the alkali.

When it is necessary to give the remedy as freely as the patient will bear it, to produce its sedative effect upon the circulation and upon the nervous system, it is well never to omit to learn the condition of the stomach, and if there is gastric irritation it should be controlled by soda and hyoscyamus, or morphia, that emesis may not be produced.

Although its emetic effects are exceedingly valuable in controlling acute inflammations, such as ophthalmia, gonorrhœa, and croup, and severe nervous affections, or fevers of a high grade, it is not the depressing effects of nausea which cause the reduction of the force of the circulation; for I have with this agent reduced the pulse to 30 beats in the minute, without causing the slightest nausea; and we almost always see a reduction in the number as well as the character of the pulsations before nausea is induced, and especially where it is given in full doses for the purpose of producing vomiting. And vomiting frequently takes place without any precursory feelings of nausea, but not before the effects of the medicine are plainly felt upon the pulse.

It seldom acts as an emetic except in very large doses, in less than three-quarters of an hour, and sometimes not before one or two hours, but its effects upon the pulse are sometimes distinctly felt in fifteen minutes after its administration, and they are thus

early noticed not so much in the reduction of the frequency of the pulsations as in the greater softness of the beat, and the lessening of its nervous, irritative character. This will be apparent by referring to those cases previously reported, in which the medicine was administered by injection into the veins.

When the stomach has once been emptied of its contents by an emetic dose of veratrum, the fluid that is afterward vomited is peculiar, and unlike other fluid that is thrown up from the effects of any other medicine with which I am acquainted. It is a viscid, ropy, semifluid mass, having much the appearance of the white of egg mixed with a portion of the yelk, but not so deep in color as if the whole of the yelk had been mixed with the albumen. Occasionally the vomited matter is an opaque yellow, but it is generally transparent; sometimes it looks exactly like egg in a state of decomposition. It has the same peculiarity, whether vomited by human beings or dogs or cats.

Objections have been raised by some persons as to the pure *sedative* character of this medicine, because it produces an emetic action. The objection is not tenable, as other sedatives, as tartar emetic, produce a like effect, and nearly all derange the action of the vagus nerve.

Norwood is in error when he says "it is a certain and valuable emetic;" it is certainly a powerful and alarming one.

DIVISION NINTH.

RECAPITULATION. FIRST, SECOND, THIRD, AND FOURTH DEGREES OF OPERATION.

First Degree of Operation.—If two minims of the concentrated tincture are administered to an adult; its effects are scarcely perceptible in any way for less than an hour; its effects will then be noticed by a diminution in the force of the pulse, which will gradually become softer. No symptoms that are perceptible to the patient will be felt from one small dose; but if the same dose be repeated an hour after the administration of the first, and so continued for three or four consecutive hours, there will be a marked diminution in the frequency of the pulse, together with diaphoresis and increased flow of saliva. Doses of this quantity administered hourly for four or five hours, will frequently cause the pulse to fall from 150 to 90 or 80 beats in the minute, and the respirations will become fuller and less frequent.

Second Degree of Operation.—If a dose of five minims of concentrated tincture be given every hour, vomiting will generally be produced before the fourth hour, and frequently before the third. The first vomiting is usually very easy; sometimes not preceded by nausea, and sometimes the nausea occurring only a few minutes before vomiting. At other times the nausea is felt early, and is persistent for several hours before vomiting takes place.

The pulse by the third or fourth hour will frequently be reduced to 60 beats in the minute; and if the remedy is now continued in diminished doses, at rather longer intervals, the pulse may be kept at this state as long as desired.

The patient continues to express a feeling of nausea if he attempts to sit up; but if left undisturbed, is easy, drowsy, and inclined to sleep, or at any rate to rest quietly. The mind is clear, but slow to take notice.

The skin is covered with a clammy moisture upon parts of the body that are exposed, but if covered, the feeling is that of moisture, with a comfortable but lessened degree of heat of the skin.

The secretion of saliva is free, sometimes viscid, with an increased secretion of bronchial mucus. The urine is augmented if there has been any preceding fever.

Third Degree of Operation.—If the same dose of five minims is continued after vomiting at the same intervals, or if a large quantity is given too freely before vomiting, the pulse will be reduced to 50 or 40 beats in the minute.

The nausea will continue with an occasional eructation of a mouthful of viscid mucus, and if the remedy is not suspended there will be much retching and painful vomiting, with præcordial distress. The countenance will become pale, and the aspect alarming to the friends.

If the patient assumes an erect position he will become faint. There is great muscular relaxation and feebleness, and sometimes dimness of vision. The respirations become uneasy and irregular. The surface of the body is wet, and where exposed quite cool. The mind is not disturbed, and the patient, if not frightened by the friends, will feel no alarm.

If the remedy be suspended these symptoms will subside in three or four hours, and will entirely pass over in six hours.

This state will occasionally be caused by exceedingly small doses in those who are very susceptible to its influence.

Fourth Degree of Operation.—Where large doses have been given

by mistake, or where too large ones have been given at frequent intervals, and continued too long, there will be violent and continued vomiting and retching, the countenance will become exceedingly pale and ghastly, the prostration will be great, and syncope will occur if the head is raised much above the horizontal position.

The feelings are more those of prostration than pain; but sometimes there is great præcordial distress. Sensation and consciousness remain, but are impaired, and there is depression of the mental power; the patient hears what is said, but is unwilling to answer questions, or to be disturbed in any way. Muscular action is impaired, and the vision is dim. The voice is weak and the respirations slow.

The pulsations are unfrequent, and sometimes irregular and intermittent, reduced to 30 beats in the minute, and in one instance related to me, to even 19 in the minute. The surface is cold, and bathed in a profuse clammy sweat.

Patients, even in this state, recover more rapidly than would be supposed, if the proper remedies are administered, as it is a state of prostration, not of exhaustion.

I have never seen nor heard of the death of a human being from *veratrum viride*; its poisonous effects on animals are described under their proper head.

Many physicians have employed *veratrum viride* in moderate doses, and yet have produced the effects here described as resulting from its excessive use.

The friends of the patient, greatly alarmed, have summoned the physician in haste, and unless he has seen such cases before, or is aware of the effects occasionally produced by this remedy, he is equally alarmed.

I have heard of many such cases, and the physician has afterwards forsworn the use of the medicine, considering it one of extreme danger. This result will seldom happen, if it is given in small doses, and frequently repeated, watching the character and frequency of the pulse the while, and suspending or reducing the dose when necessary. But when it is given in full doses, and at longer intervals, and the character of the pulse not closely watched, the result before described will be produced.

Although it has no cumulative effect, the first few doses sometimes produce but little action, owing to a derangement of the stomach, or want of assimilation, but when absorption does once commence, the whole is taken up at once, and produces alarming effects.

It certainly is not a mark of wisdom to discard the use of a remedy, which has been proved to have such peculiar powers, simply, because in a few cases, which have been improperly watched, it has produced more serious effects than were either desired or expected. All remedial agents might be discarded on the same grounds. Such accidents should serve as lessons, and prove both the power and utility of the remedy, and the necessity of carefully watching every symptom of the patient.

DIVISION TENTH.

VERATRUM VIRIDE IN LARGE OR POISONOUS DOSES.

There are several instances on record where veratrum viride has been taken in very large doses,¹ two fluidounces and over of

¹ *Is Veratrum Viride a Poison?*—We see in the May number of the *Chicago Medical Examiner* "A case of poisoning and recovery from the use of Veratrum viride, by N. O. Pearson, M. D."

We should hardly notice this isolated case were it not that many similar cases have been before reported, and in consequence some persons feel afraid to use the article in question. It will be noticed in this case that the patient took nearly seven minims of the tincture of veratrum every half hour until he had taken three doses in all, amounting to about twenty minims in 1½ hour. The usual symptoms of vomiting and prostration followed, with a pulse reduced to twenty-four in the minute, "full and intermitting every sixth or seventh beat." The physician was alarmed, and administered opium in a "most prodigal manner," and his patient recovered. He says, "This was a case of poisoning by veratrum viride, and should teach us to be very cautious in the use of so powerful a remedy." We should undoubtedly be cautious in the use of every remedy, and should not administer it in its full dose until we are most perfectly acquainted with its powers. We certainly differ in opinion with the author of this reported case; and we feel perfectly assured that if he continues to administer his remedy as he recommends—"until it produces a livid hue of the cheeks"—he will have many opportunities to cause himself and his patients more alarm than in the present instance. This "livid hue of the cheeks," of which he speaks, is but one of the symptoms of the full effects of the remedy, and indicates that it has been pushed to the point of prostration; and no one will pretend for a moment to assert that it needs in all cases, or in a majority of cases in which its use is indicated, to be pushed to that extent. That point of producing "a livid hue to the cheeks" is very seldom reached until vomiting is induced, or the usual nausea and paleness preceding vomiting, and in nine cases out of ten in which veratrum is indicated, we do not wish, in fact we wish to avoid vomiting.

We think our friend has erred in the deductions he has drawn, and as he gets better acquainted with the therapeutic effects of his remedy, he will himself acknowledge so. Had he not administered opium, his patient would have recovered quite as well, as every one who has used the veratrum to any extent will assure him. We have several times induced just such a state, and purposely kept our

the concentrated tincture, but I have never met with a death from its action, nor have I ever seen a single authenticated case on record where death ensued from its use.

Those cases, in which large doses have been taken, that have come under my observation, have been alarming from the excessive prostration produced; but they have been relieved by stimulating remedies, and within twenty-four hours the effects of the medicine have passed over.

As a large dose taken at one time causes quick, free, and frequent vomiting, a great portion of it is necessarily ejected from the stomach, but a small dose frequently repeated is absorbed, and although it produces vomiting and retching, the prostration produced is

patient at that point for the purpose of overcoming his disease, nor have we felt the least alarmed; but it is not frequently necessary to administer it in such doses. But in all cases where it is necessary to induce such a state, we carefully and frequently watch the pulse, and are guided in our doses by its action.

But our principal object in bringing these cases before the notice of the profession is to elicit information, and we would ask, to what extent is *veratrum viride* a poison? And if it produces death, in what manner does it do so? It is not our intention at present to write a treatise on *veratrum viride*; that we will leave till a future number, but we will give some few interesting cases, to show to what extent it has been taken.

In the year 1823, a farmer of our acquaintance procured ten pounds of swamp hellebore, and boiled it in water down to a gallon of fluid for the purpose of washing his calves to destroy vermin. His wife, who was sick at the time, and had some herb tea prepared, took in mistake a tumbler full of this hellebore decoction. It produced very alarming symptoms, vomited her very freely, and the prostration and cold sweat were fearful. By the ordinary stimulating remedies that were used she recovered in forty-eight hours.

In 1840, a person of our acquaintance prepared two quarts of syrup, from what he supposed to be two pounds of American valerian, but a mistake was made, and American *veratrum* was used instead. A tumbler full of this syrup was taken at a dose, and as it caused vomiting the dose was repeated. The same alarming symptoms and prostration as before described followed, but in two days he was again able to be about.

In 1858, a physician took, by mistake, thirty grains of *veratrin* (the combined medical principles of *veratrum viride*). It caused copious vomiting followed by prostration and loss of pulse at the wrist. By free use of brandy and warm external applications he recovered, and was out again on the third day.

A man, rather too fond of his neighbor's rum bottle, went into a country store, and finding a bottle marked "Old Rum," poured out and quickly drank nearly a tumbler full of tincture of *veratrum viride*. Not wishing the storekeeper to know of it, he said nothing about it until it caused vomiting, and then being much alarmed, told what he had done. A physician was sent for, rum was freely given, and the same night the man walked home.

See also the *North Western Medical and Surgical Journal*, November, 1857, page 493.—*Amer. Journ. Indig. Mat. Medica*, vol. i. p. 14.

greater in proportion than when the amount taken at one dose is larger.

There is probably no remedy in the whole *Materia Medica* that produces such a death-like pallor. The effects produced upon the countenance much resemble the appearance caused by syncope from hemorrhage.

In the cases and experiments that I have reported, of its action on animals, there are several deaths from its use by hypodermic injection, and injection into the veins, but when administered by the stomach, to cats and dogs, even in very large doses, they all recovered.

As under its administration the secretions are augmented, it is rapidly carried out of the circulation, if the secreting organs are in a healthy state, free from organic disease.

There is no question, I think, that in large doses, frequently repeated, or in cases where there is organic disease of the kidneys, it may prove fatal by its powerful sedative effect upon the circulation, causing syncope and cessation of the heart's action.

The treatment in cases of poisoning is a prompt stimulating plan. Hot spirits and water, tincture of cantharides, ammonia, electro-magnetism. The surface of the body, especially the extremities, should be kept covered, and warm cloths applied. Friction is indispensable, as it keeps the blood in motion. Clear, undiluted spirits check the painful vomiting better than any other remedy.

DIVISION ELEVENTH.

CUMULATIVE ACTION.

I have not met with any evidence that *veratrum viride* has a cumulative action; in fact I am satisfied that this so-called cumulative action seldom exists in any medicine, even *digitalis*.

This action I have frequently seen with opium, occasionally with *digitalis*, *hyoscyamus*, *veratrum*, &c., but only in cases where there was disease of the kidneys; and wherever I have found this so-called cumulative action, I have afterwards found albumen in the urine. In albuminuria and uræmia, therefore, *veratrum*, like opium, is contra-indicated, except under the most careful watching. It does not, like antimony, possess the property of *toleration*.

SECTION SIXTH.

MODUS OPERANDI.

VERATRUM viride acts upon the system by transmission with the blood, and that its effects do not take place until after absorption into the blood is proved by:—

1. Its peculiar action on the system when introduced elsewhere than into the stomach.

2. The greater rapidity of its action, and intensity of its power, when introduced directly into an artery or vein.

3. Its action on the various discerning organs, either when taken into the stomach, or when introduced into an artery or vein, a serous cavity, or the cellular structure. The presence of its alkaloid in the secretions formed out of the blood; when the extract of the plant was given by the mouth; when it was introduced into a serous cavity; or into the cellular structure beneath the skin. Also, the production of its physiological action when the milk, saliva, or urine of one animal to which the tincture has been for some time administered, is given to another animal.

4. Its peculiar action upon the pneumogastric nerve when it reaches that nerve only through the circulation.

5. The absence of any impression conveyed to a distant part of the system when it is applied to the surface of the skin, together with the production of its topical effects to the nerves of the part to which it is applied, in proportion to the amount and rapidity of its absorption.

6. The dilatation of the bloodvessels after its administration, visible by the microscope in the capillaries, and sensibly felt in the larger vessels by the slower passage and increased volume of the blood; and by the free diaphoresis produced.

7. By its effects upon the blood disks, altering or diminishing their size. (See Section 3d, Division 4th.)

Professor Christison asks of somewhat similar remedies, is the peculiar effect caused "by being carried with the blood to the part

on which it acts, or by producing on the inner membrane of the vessels a peculiar impression which is conveyed along the nerves?"

There may be objections raised to the 6th and 7th propositions, on the ground that if the bloodvessels are dilated and the blood disks rendered smaller, it is not explained how inflammation is relieved; and also why the red disks do not continue as before to flow through the capillaries which, in health, only carry the white globules? It will be remembered that the flow of red blood through certain vessels only occurs in inflammatory conditions. In this inflammatory state the deranged flow may be partly owing to a *vis-a-tergo*, and an obstruction of the proper channels; or to an altered condition of the endangium of the particular part; or to an altered condition of the blood itself; all of which may be produced by a deranged condition of the methæmatus nerves of the part affected.

After the administration of veratrum viride the blood is immediately acted upon, and it exerts a sedative effect on the endangium, and causes a dilatation of the vessels, so that the blocked-up current can flow in its proper channels.

That it also exerts a powerful influence upon the vaso-motor nerves is proved by many experiments, and we have seen that when injected subcutaneously into one leg of a frog the circulation in the web of that foot was immediately stopped, while the circulation continued in the other foot for some time. It is also perhaps owing to a sedative action upon the excito-sensory nerves that it affords such rapid relief by hypodermic injection in some cases of acute neuralgia; for it has been demonstrated by Marshall Hall and Claude Bernard, that these nerves are not always distinct in their distribution, but run in company with other and larger branches of nerves.

I need hardly repeat that this remedy is most successfully used in diseases in which there is an accelerated circulation, owing to inflammation or irritation. May not this diseased condition be relieved by the action of the medicine upon the endangium through the blood itself?

This internal membrane of the vessels (*membrana vasorum commune endangium*¹) is common to all the vessels of the circulatory apparatus from the heart, to the smallest capillary. It is a very thin, transparent membrane, possessed of neither visible fibres,

¹ Durbach, ff. 698. Meigs, Diseases of Females, p. 342.

vessels, or nerves. It is easily torn, and its connection is severed by the application of a ligature to a vessel, but it is readily reproduced. It is, in fact, almost, if not quite, the only channel or limitation for the circulation of the blood in the small capillaries, and as circulation is established in new formations, its growth keeps pace with the passage of the blood. As I have before said, it possesses neither visible fibres, vessels, or nerves, but is in itself one vast nervous communication, receiving healthy or diseased impressions from the blood, upon which it depends for the healthy performance of its functions. Like every other organ of the body it is formed from the blood, and when once formed it has special duties to perform, which duties are in part the communication of the proper nervous influences to the blood itself. It receives impressions from the blood, and in its turn communicates an action to the blood, and performs the finishing stroke in the transformation of the living plasma.

From observations on the use of this remedy, and from numerous experiments I have performed, it seems to me more than probable that it exerts its special and peculiar influence upon this endangium, or, as it might be designated, blood-nerve membrane. That its primary influence after absorption is upon this membrane, and that all of its other effects are owing to this influence; as the dilatation of the vessels; the contraction of the blood disks; the increase of secretion; the resolution of congestion; the loss of muscular power; and paralysis of the heart's action. The cause of death is syncope—cessation of the action of the heart, a paralysis of its muscular structure, owing to the inability of the blood to communicate a continuous electro-tonic, or life force to the muscle.

Dr. A. Billing, in his *Principles of Medicine*,¹ considers that all the medicines that have been called specifics, as mercury, arsenic, and colchicum, are *not* specifics, but that they owe their curative power to the capability of subduing different kinds of inflammation, or inflammatory poisoning, by causing contraction of the dilated capillary vessels.

Mr. Wharton Jones, in his "Sir Astley Cooper Prize Essay," states that medical solutions applied to the web of the frog's foot produce very various effects upon the capillaries; and that sulphate of copper, an irritant and astringent, has caused dilatation, while atropia, which causes such marked dilatation of some tissues, has in these cases produced contraction of the capillaries.

¹ Fifth edition, pp. 70-75.

There are many who reason from these experiments of Mr. Jones, that the effects of medical agents upon the capillaries are *not*, and cannot be constant in their character. And yet in my opinion they are of no value whatever in deciding the effects of medicines upon the capillary circulation. They were applied externally only, and not internally, and their first effect would be on the *nerves*, not on the capillaries, and the effects described would be just such as might be expected when applied externally or not within the circulating fluid of the capillary itself. In the first instance an irritant, almost an escharotic, is applied to the surface, and it inflames the whole surrounding tissue, capillaries included, and as the primary effects pass off *dilatation of the vessels* affords relief to the part. In the latter case a powerful sedative is applied, and through its influence upon the peripheral nerves all the surrounding parts are for a while brought under its primary sedative influence; there is a lessened action, and less blood flows through the vessels of the part, nor am I aware that anybody has yet asserted that atropia causes dilatation of the capillaries; it is dilatation of some of the muscles, as the iris, that it is known to produce. This is one of its special actions, and we are every day improving in our knowledge of physiology, and of the action of medicines, by carefully noting these special actions of our various remedies.

In these cases of Dr. Billing on the effects of mercury, &c., his observations were also no doubt made with great accuracy, the conclusions only which he has arrived at from these observations are not I think entered into with sufficient correctness. That there should be a dilated state of the capillaries in syphilis, lepra, and rheumatism, would seem more than probable as the poisons circulating in the blood would deteriorate its quality to such an extent as to cause a diseased and enfeebled condition of the endangium also, and thus produce a dilatation of the capillaries. But Dr. Billing does not speak of this dilatation as caused by a disordered condition of the blood, nor does he account for the subsequent contraction of the capillaries through an improved condition of the circulating fluid by a lessening of the amount, or an entire removal of the poison, but solely to the therapeutic and peculiar action of the mercury, arsenic, or colchicum. It appears to me that his observations are correct, but that his reasonings are erroneous.

That peculiar poisons do so act as to cause contraction of the capillaries and even of the larger bloodvessels, we have sufficient proof in intermittent fever. In a paroxysm of this miasmatic

poisoning of the blood, the first symptoms are a chill and visible contraction of the external vessels of circulation; this lasts for some time; a fever then sets in, in which reaction takes place, and instead of a contracted condition of the vessels we have a state of dilatation, and the whole ends with an exudation from the vessels producing a copious perspiration, and then gradually the circulation returns to its normal state. Now that any medicine that would merely cause a dilatation of the capillaries in the first stage, or a contraction in the second, would cure the disease, I think improbable, unless at the same time it had a special catalytic effect.

The antiphlogistic effects of mercury, arsenic, &c., are partly accorded by Dr. Billing to their capability of subduing different kinds of inflammation, or inflammatory poisoning, by causing contraction of the dilated capillary vessels. But it is not even proved, it is as yet mere hypothesis, that there is dilatation of the capillaries in diseases that are cured by these remedies. There are also other remedies that are supposed to produce the same state of contraction, but which do not cure the diseases named. Other authors have assigned to the remedies in question a catalytic action, and in part attribute the cure of the diseases for which they are given to their antiplastic action on the blood, and the removal of the morbid materials, partly in this way.

Veratrum viride, although a catalytic, is unlike mercury or arsenic, for they counteract inflammatory, or poisonous processes, by slow catalytic action on the blood, whereas *veratrum* has a more rapid action, and produces other changes in the character of the blood, by its immediate action on the kidneys, skin, and mucous membrane, in fact a quick eliminative action produced by agency of the excito-sensory nerves. That the relief from inflammatory diseases by *veratrum* is alone owing to a mere dilatation of the vessels is not to be supposed, but it is owing also to a change in the character of the blood, and an action on the excito-secretory nerves, by which assimilation, elimination, and depuration are effected, and we thus have in this dilatation of the bloodvessels, and contraction of the blood disks, an explanation for the change in the character of the pulse.

Weber proved by many experiments that electro-galvanization of the vagus nerve lessened the number of the heart's pulsations, and prolonged the diastolic period; this, as we have seen, is the special action of *veratrum viride*, and by this almost uniform certainty of its action we have attested its very great utility as a

means of diagnosis in diseases of the heart and lungs. Weber also demonstrated that division of the par vagum caused great acceleration of the heart's pulsations, and from these experiments asserts that the par vagum controls the action of the heart.

The investigations of Marshall Hall, Bernard, and Brown-Séquard show that the pneumogastric nerve does not alone control the heart's contractions, but that other nerves have an equivalent power. Beyond the action of these we find many causes for preternatural cardiac pulsations, and we should frequently be deceived if we attributed irregularity of the heart solely to any one cause. We see by reference to Case 12, that the presence of lumbricoides interfered with the heart's action, and prevented the operation of the medicine; by reference to Case 11 we find the presence of lamellated patches in the veins, frequently produced hurried respirations, and pulsations, and eventually in a period of excitement caused death; in Case 7 we find that mental disturbance increased persistently and violently the action of the heart; in Case 8, pain alone increased the heart's rhythm; in Case 9, miasmatic poisoning produced the same result; in anæmia and chlorosis we find the same disturbance; and in fatty degeneration of the heart we have a lessened action from impaired contractile power; and yet in all these cases veratrum has been used, and while its influence continued the heart's pulsations were brought to a more normal standard, complete and steady contraction of its chambers taking place, and thus stability and volume given to the pulse. In almost all disease the heart's pulsations are disturbed, yet we could not suppose that by merely bringing the heart to a normal beat, we could cure, or even relieve all diseases; but there are periods during many diseases when there is a great functional disturbance of the heart, which may be temporarily relieved, while catalytic or other proper and necessary medicines may effect a change in the system and cure the disease. We thus afford present relief while we are working permanent cure.

We have in the few cases here narrated plainly *seen* the operation of this medicine and the effects produced. It is first absorbed into the blood and there manifests its power, proved to us by the *manifest phenomena* we witness. As the medicine is conveyed with the blood to the heart, and every minute ramification of the venous system, it is thus universally distributed to every excito-motor, excito-sensory, and excito-secretory nerve, producing relaxation, alleviation, elimination, and depuration.

However slow the pulse, and we have seen in some instances with animals that it has been reduced to 16 pulsations in the minute, with but few respirations in the same time, there have been no symptoms of suffocation; and in those instances where *veratrum* has been administered to individuals to control diseased action, and the pulse has thereby been reduced to 30 beats in the minute, there has been no feeling of suffocation. This is because the blood conveys sufficient oxygen, and thus to the last sustains the vital wants of the system. When administering *veratrum* in disease we have frequently found the pulsations reduced to 30 beats in the minute (the patient expressing a sense of comfort and quietude), with a normal respiration of about 18, thus allowing the blood to circulate slowly through the lungs, and receive, if anything, rather more than its usual amount of oxygen; at any rate we find no impediment to free oxidation. The blood circulating thus slowly through the lungs, and being fully supplied with oxygen, conveys it in proper quantities to all the tissues, so that there is no sense of suffocation, no demand throughout the system for more oxygen, more arterialization. That this full supply of oxygen to all the tissues is one of the causes of the great relief afforded by *veratrum viride*, is demonstrable in almost every inflammatory case we treat with it, for where, before its administration, there was rapid circulation and respiration, and a sense of suffocation (or which is the same thing, the necessity for more air), as soon as its sedative effects are felt the circulation and respiration become normal in character, because, as a part of its effects, more oxygen was conveyed to the tissues, and, therefore, there was less demand for respiratory action. Rapidity of the circulation and respiration is oftentimes nothing more than a demand of the tissues of the body for more oxygen. A peculiar state of the blood or nervous system prevents the circulating fluid from becoming duly arterialized, the tissues of the body suffer in consequence, and make a demand upon both heart and lungs to compensate this loss by rapidity of both these functions. There are many exciting causes of disease which do not alter the appearance of the blood globules, but render them incapable of absorbing oxygen in sufficient quantity, and of thus carrying on what we may call the respiration of the tissues.

That the change spoken of,¹ produced in the calibre of the vessels by *veratrum viride*, and the alteration in the form and appear-

¹ See Section 3, Division 4th.

ance of the blood disks, has much to do in the arterialization of the tissues, we have abundant proof, so far as we learn by symptoms in almost every case of disease treated. We have seen by the post-mortem examinations that have been made, that the blood in the heart was nearly always fluid, and of a light color, that both sides of the heart were filled with blood, and clots were only found when death had been induced very slowly, or after the post-mortem examinations had been delayed for some time; that the large vessels of the lungs were filled with florid blood; and that the liver was almost always gorged with blood of a light color.

In death from hemorrhage, convulsions invariably occur, because the heart is unable to supply the brain with blood; but we have seen that with *veratrum viride* no convulsions occur before death, as in hemorrhage, and not even in the most powerful medicinal doses does it produce convulsions. That death from the action of *veratrum viride* is caused by its sedative effects upon the heart is proved by the absence of suffocation, convulsions, and convulsive efforts at respiration, and by the fact that the oxidation of the blood takes place till the last moment. It does not destroy life by apnoea, that is, by stopping the respiration, but by syncope, which is suspension of the heart's action. It would seem in this respect, as well as in the antidotal action we have before spoken of, to be directly contrary to strychnia in its action, for it has been demonstrated by Harley that strychnia in poisonous quantities prevents the blood from absorbing oxygen and exhaling carbonic acid.

There is one peculiarity in the action of this medicine that I have been unable to account for. When the tincture, the resinoid, or the alkaloid of *veratrum viride* has been given by the mouth in medical doses it has produced no purgative action on the bowels, but when either of these preparations has been injected into the subcutaneous cellular tissue, or into the muscles, it almost always induces an action on the bowels. If the rectum is filled with feces, they are first discharged, and afterwards small amounts of dark mucoid feces, frequently not over a drachm in weight, are discharged with some tenesmus, and upon post-mortem examinations the mucous membrane of the rectum is found reddened and congested. Why it should act in this way when injected subcutaneously, and not when taken by the mouth, I must leave for physiologists to decide.

Is *veratrum viride* narcotic? Tully and Osgood state that it is. But we see by the experiments and cases already narrated,

that it is not narcotic in its action, that it does not in any instance primarily exalt nervous force, but uniformly depresses it throughout the whole period of its operation.

It differs markedly from narcotics in producing no special action on the intellectual function of the brain, but it merely renders the patient languid, quiet, unwilling to be disturbed, and disposed to sleep. Under poisonous doses the functions of volition and sensation are impaired; but this is an effect produced by sedatives, and is due to derangement not of the cerebral, but of the excito-motor and excito-sensory nerves through the vascular system on which the veratrum seems to exercise special control. Consequently, unlike narcotics, it produces no deliriant action, and does not act so markedly on respiration as on the circulation, because the respiration is more under the control of the cranial nerves.

Patients under the influence of this remedy exhibit an intensification of the ordinary physiological law, in virtue of which the pulse falls during sleep; the veratrum frequently causing a diminution of 30 beats in a minute in a short time, merely by the patient falling asleep. I have carefully watched the pulse of patients during sleep who were taking this medicine, and have never known the pulse to increase suddenly, as is often the case with patients on the eve of delirium, under the influence of narcotics. Indeed veratrum simulates the remedial action of sleep by moderating the flow of blood, and thus neutralizes the effect of a diminished supply of oxygen incident to inflammation.

Paramount to all its other actions we see by the many experiments before us that veratrum viride is a *special arterial sedative*. We see that it regulates the number and character of the heart's pulsations, that it tones and controls the contractions, and thus makes more slow the rapid and irritable pulsations of a weak heart; and that it lessens the force and violence, and gives moderation to a heart rendered too vigorous by functional disturbance or exciting causes.

Veratrum viride is antiphlogistic because of its depurative action on the blood by means of the tenuous extremities of the nervous system—Marshall Hall's "methæmatus nerves." We have seen that it does not deteriorate or impoverish the blood like antimony and mercury; and it is more than probable that every portion of the medicine is soon carried out of the system by means of its potent eliminative action.

In nearly every instance of its administration it greatly augments the secretion from the skin, promotes increased expectoration, causes a rapid and increased flow of saliva; and although it cannot be said to increase the quantity of urine passed, it certainly largely augments its specific gravity, and thus is probably a more potent diuretic than though it merely increased the quantity of water; it exerts an eliminative action on the lymphatic and mammary glands, and indurations and enlargements disappear under its use. These various eliminative actions prove its high value as an anti-phlogistic.

In the relation of experiments upon animals we have given many instances where the pulse was reduced below 30 beats in the minute, and where nervous force seemed almost exhausted and life apparently seriously threatened; and yet in these seeming desperate conditions, strength is quickly regained and circulation brought to its normal condition by the administration of the proper antidotes—*stimulants*. I do not doubt that a fatal result *may* be produced, but such results must be very rare, since the effects are mainly instances of depression not of exhaustion.

Of its *modus operandi* when used as a means of diagnosis, I have spoken fully in the cases related.

LARYNGOSCOPAL THERAPY,
OR
THE MEDICATION OF THE LARYNX UNDER SIGHT.

BY
LOUIS ELSBERG, A.M., M.D.,
LECTURER ON DISEASES OF THE THROAT IN THE UNIVERSITY OF NEW YORK, FELLOW OF THE N. Y.
ACADEMY OF MEDICINE, DELEGATE FROM N. Y. MED.-CHIR. COLLEGE.

LARYNGOSCOPAL THERAPY; OR, THE MEDICATION OF THE LARYNX UNDER SIGHT.

THE method of examining the larynx and neighboring structures, by means of the laryngoscope, forms one of the most important recent improvements in medicine. In rendering accessible to our view, in living working order, organs thus before veiled from mortal eyes, it has not inconsiderably advanced the cause of human investigation. The satisfaction it grants to the inquirer in the walks of general science and of physiology, must be experienced, to be understood. As an aid in diagnosis to the physician, it can truly be said to have revolutionized laryngeal bio-pathology; and, by directly enlarging the field of therapeutics, it has dawned upon us in another and still brighter light.

Hitherto, the practical advantages of laryngoscopy have been mainly limited to the recognition of disease—indirectly, most frequently, contributing to the cure. Although its capabilities in regard to the latter, with “the intelligent eye guiding and controlling the operating hand,” had been early pointed out by Czermak, the special instrumental appliances and technical procedures for carrying out treatment have remained very imperfect. The ingenious attempts made, and satisfactory results attained, have sufficed to show *how much can be achieved*, rather than succeeded in giving to laryngoscopic therapy its rank in the healing art.

I therefore wish to call the attention of the profession to the accurately local medication of the larynx under sight. The set of instruments which I beg leave to present to the Association for this purpose, consists of

- A laryngeal brush (Fig. 1),
- A laryngeal sponge-carrier (Fig. 2),
- A laryngeal porte-caustic (Fig. 3),
- A laryngeal insufflation tube (Fig. 4),

A laryngeal fumigating tube (Fig. 5), and

A laryngeal electropole (Fig. 6).

With these instruments, and the laryngoscopic apparatus, we can convey medicines in either the solid (powdered and in stick), liquid, or gaseous state. *We can see exactly what we do.* We can apply our remedy to a precise spot within the larynx intended to be touched, to either a surface of more or less extent, or to but a point, entirely avoiding healthy or adjacent structures not to be touched!

Before entering upon the description of these instruments, I call your attention to my *Laryngoscopic Mouth-piece* (Fig. 7), in which is combined a tongue spatula, a laryngoscope holder, and a mouth-keeper. It is adjustable to different persons by a chin-holder sliding upon a bar, to which it is firmly attached by a screw.

The tongue-depressor can be lengthened or shortened, or taken away altogether. I have found it in many cases preferable to order the patient to protrude his tongue, and either hold it myself, or let him hold it, in a horizontal position with the hand gloved, or provided with a handkerchief or towel. This method of letting the patient hold his own tongue, which I have introduced from the very beginning of my laryngoscopic practice, offers many incidental advantages.

The mouth-keeper gives support to the maxillaries, and relieves the muscles greatly, while it is by no means intended to force the mouth open. The laryngoscope holder (*a* in the Fig.) firmly and effectively fixes the laryngeal mirror, thus relieving the operator's hand, while the mirror can also easily and quickly be removed and replaced.

The laryngeal instruments which I have enumerated and exhibited (*vide* the cuts), resemble each other in their general characteristics. Their most essential peculiarity is their size and exact bend, the latter being one and one-quarter right angle; the length of the handle three and a half inches; thence to the bend the same distance, and to the straightened end nearly five and a half inches. All their dimensions have been adopted as the result of numerous careful measurements and experiments in both living and dead.

The *laryngeal brush* (Fig. 1) is provided with a screw ring, which allows the brush part to be firmly attached, and easily removed. For the latter, asbestos seems to answer the purpose best, and a

Fig. 1.



Fig. 2.



Fig. 3.



Fig. 4.



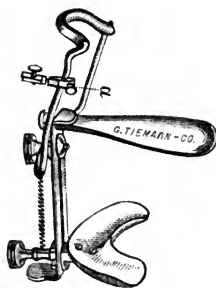
Fig. 5.



Fig. 6.



Fig. 7.



good quality of badger or camel-hair next best; neither metallic nor glass brushes are satisfactory.

The *laryngeal sponge-carrier* (Fig. 2) has a similar screw ring as the preceding, thereby allowing a small piece of sponge or lint to be securely attached between its toothed blades, and to be easily removed after use.

The *laryngeal porte-caustic* (Fig. 3) bares or shields the caustic with a pliable, yet efficient wire-covering, which is retracted by a finger-ring attached to it, and is projected by gentle spiral-spring power. The coil also allows the addition of salt, oil, or other agent for neutralizing caustics.

The *laryngeal insufflation tube* (Fig. 4) receives in the glass bulb (*b* in the Fig.) any powder, which may be conveyed through the tube by pressure on the India-rubber bag (*a*).

The *laryngeal fumigation tube* (Fig. 5) allows, by means of India-rubber tubing, of facile attachment to the apparatus disengaging the gas both before and after introduction.

The *laryngeal electropole* (Fig. 6) allows the insertion into the handle, of either the continuous wire of galvanic cautery (as in the Fig.), or of two separate wires connected with the poles of a battery, and held apart, or approximated, at will. When no pressure is made on the button in the handle, the current does not pass, and the wires are instantly converted into simple probes.

The medicinal agents employed, I select on general therapeutic principles. At the head of the list stands the much abused, but, where properly understood and restricted, unsurpassed remedy, nitrate of silver, in mitigated and unmitigated stick, and in solution, varying from the slightest astringency to absolute saturation. Nitrate of silver is combined also, according to circumstances, with the most important of the other local remedies, such as glycerine, iodine, morphine, salts of potassium, potash, &c. Furthermore, tannin, belladonna, aconite, various preparations of iron, and other metals, acetic, chronic, and other acids, various oils, turpentine, strychnine, and numerous other active medicines, have been advantageously conveyed into the pharyngo-laryngeal regions.

The reaction following the touch of instruments in these portions of the body, previously unused to such applications, is sometimes very alarming. It usually consists of dyspnoea, "a choking sensation," and more or less pain and difficulty of swallowing, as well as breathing. Generally all these symptoms pass off speedily, and without leaving any unpleasant effect, but it is necessary to be

aware of their course, and sometimes absolutely requisite to prepare the patient for them previously.

There is no inherent danger in the method. When the indications for treatment are properly arrived at, the remedial agent and strength of dose suitable in a particular case well selected, and the application made by competent hands, the apparently serious consequences need inspire no fear whatever. They will disappear in a few minutes, but even if exceptionally they do not subside at once, they will gradually do so either of themselves or on reassuring the patient enough to tranquillize his mind; making him breathe deeply and regularly, swallow a little ice water, inhale a little of an anodyne or anæsthetic mixture; and applying cold, rubefacients, or fomentations externally to the throat.

Any one who has learned to practise laryngoscopy with ease and success, can soon master the method of *laryngoscopic therapy* with the instruments I here present. Its feasibility and utility have been demonstrated in my private practice, as well as in my clinic, at the University of New York, before many physicians and medical students.

NEW YORK, 153 West 15th St.

PLAN OF ORGANIZATION
OF THE
AMERICAN MEDICAL ASSOCIATION.

VOL. XIV.—21

PLAN OF ORGANIZATION.¹

REGULATIONS.

I. TITLE OF THE ASSOCIATION.

THIS institution shall be known and distinguished by the name and title of "THE AMERICAN MEDICAL ASSOCIATION."

II. MEMBERS.

The members of this institution shall collectively represent and have cognizance of the common interests of the medical profession in every part of the United States; and shall hold their appointment to membership either as delegates from local institutions, as members by invitation, or as permanent members.

The Delegates shall receive the appointment from permanently organized medical societies, medical colleges, hospitals, lunatic asylums, and other permanently organized medical institutions of good standing in the United States, and from the American Medical Society of Paris. Each delegate shall hold his appointment for one year, and until another is appointed to succeed him, and shall participate in all the business and affairs of the Association.

Each local society shall have the privilege of sending to the Association one delegate for every ten of its regular resident members, and one for every additional fraction of more than half of this number. The faculty of every regular constituted medical

¹ In accordance with the following resolution, passed at the session in Washington, the Committee of Publication have introduced into the Plan of Organization all the resolutions adopted at the various meetings for the government of the Association. Those for which there was no appropriate place have been appended.

Resolved, That the Committee on Publication be instructed to collect all the by-laws and resolutions which have not been rescinded through the different volumes of the *Transactions*; to arrange them under their respective heads, and append the same to the Constitution. (See page 50.)

college, or chartered school of medicine, shall have the privilege of sending two delegates. The professional staff of every chartered or municipal hospital containing a hundred inmates or more, shall have the privilege of sending two delegates; and every other permanently organized medical institution of good standing shall have the privilege of sending one delegate.

The sum of three dollars shall be assessed, annually, upon each of the delegates to the sessions of the Association, as well as upon each of its permanent members, for the purpose of raising a fund to defray the expenses of printing the *Transactions*. The payment of this assessment shall be required of the delegates and members in attendance upon the sessions of the Association, previously to their taking their seats and participating in the business of the session; and of all others on or before the first of September in each year.

Each delegate and member who has paid his annual assessment, in accordance with the terms of the above resolution, shall be entitled to receive a copy of the printed *Transactions* of the session.

No individual who shall be under sentence of expulsion or suspension from any State or Local Medical Society, of which he may have been a member, shall be received as a delegate to this body, or be allowed any of the privileges of a member, until he shall have been relieved from the said sentence by such State or Local Society.

No one expelled from this Association shall at any time thereafter be received as a delegate or member, unless by a three-fourths vote of the members present at the meeting to which he is sent, or at which he is proposed.

No State or local society shall be entitled to representation in this Association, that has not adopted its Code of Ethics.

No State or local society that has intentionally violated or disregarded any article or clause in the Code of Ethics, shall any longer be entitled to representation in this body.

No organization or institution, entitled to representation in this Association, shall be considered in good standing, which has not adopted its Code of Ethics.

Delegates representing the medical staffs of the United States Army and Navy, shall be appointed by the Chiefs of the Army and Navy Medical Bureaux. The number of delegates so appointed shall be four from the army medical officers, and an equal number from the navy medical officers.

The Members by Invitation shall consist of practitioners of reputable standing, from sections of the United States not otherwise represented at the meeting. They shall receive their appointment by invitation of the meeting, after an introduction from, and being vouched for by, any of the members present, or any of the absent permanent members. They shall hold their connection with the Association until the close of the annual session at which they are received; and shall be entitled to participate in all its affairs, as in the case of delegates.

No assessment whatever shall be made against members by invitation, but they also shall be entitled to a copy of the printed *Transactions*, by paying the sum assessed upon delegates in attendance.

The Permanent Members shall consist of all those who have served in the capacity of delegates, and of such other members as may receive the appointment by unanimous vote.

No permanent member who is not present at a meeting of the Association, shall be required to pay the annual assessment; but no such permanent member shall be entitled to receive a copy of the printed *Transactions* unless he pay into the treasury a sum not less than the annual assessment paid by the delegates and permanent members in attendance; all the names of permanent members that have been left off the published list, shall be reinserted therein in the next volume of *Transactions*.

Permanent members shall at all times be entitled to attend the meetings, and participate in the affairs of the Association, so long as they shall continue to conform to its regulations, but without the right of voting; and, when not in attendance, they shall be authorized to grant letters of introduction to reputable practitioners of medicine residing in their vicinity, who may wish to participate in the business of the meetings, as provided for members by invitation.

Every member elect, prior to the permanent organization of the annual meeting, or before voting on any question after the meeting has been organized, must sign these regulations, inscribing his name and address in full, specifying in what capacity he attends, and, if a delegate, the title of the institution from which he has received his appointment.

No one shall be permitted to address the Association, except he shall have first given his name and residence, which shall be distinctly announced from the Chair, and the member be required to

go forward and speak from the stand, and not more than ten minutes at one time.

It is the duty of every member of this Association, who learns that any existing medical school departs from the published conditions of graduation, to report the fact at the annual meetings; and that, on proof of the fact, such school shall be deprived of its representation in this body.

III. MEETINGS.

The regular meetings of the Association shall be held annually, and commence on the first Tuesday in May, or first Tuesday in June. The place of meeting shall never be the same for any two years in succession, and shall be determined, with the time of meeting, for each next succeeding year by vote of the Association.

IV. OFFICERS.

The officers of the Association shall be a President, four Vice-Presidents, two Secretaries, and a Treasurer. They shall be nominated by a special committee of one member from each State represented at the meeting, and shall be elected by vote on a general ticket. Each officer shall hold his appointment for one year, and until another is elected to succeed him.

The President shall preside at the meetings, preserve order and decorum in debate, give a casting vote when necessary, and perform all the other duties that custom and parliamentary usage may require.

The President shall be authorized annually to appoint delegates to represent this Association at the meetings of the British Association, the American Medical Society at Paris, and such other scientific bodies in Europe as may be affiliated with us.

The Vice-Presidents, when called upon, shall assist the President in the performance of his duties, and, during the absence, or at the request of the President, one of them shall officiate in his place.

The Secretaries shall record the minutes, and authenticate the proceedings, give due notice of the time and place of each next ensuing annual meeting, and serve as members of the Committee of Publication. The Secretary first in nomination shall also preserve the archives and unpublished transactions of the Association.

The Treasurer shall have the immediate charge and management of the funds and property of the Association. He shall be a mem-

ber of the Committee of Publication, to which committee he shall give bonds for the safe keeping, and proper use and disposal of his trust. And through the same committee he shall present his accounts, duly authenticated, at every regular meeting.

V. STANDING COMMITTEES.

The following standing committees shall be organized at every annual meeting, for preparing, arranging, and expediting business for each next ensuing year, and for carrying into effect the orders of the Association not otherwise assigned—namely, a Committee of Arrangements and a Committee of Publication.

The Committee of Arrangements shall, if no sufficient reasons prevent, be mainly composed of seven members residing in the place at which the Association is to hold its next annual meeting; and shall be required to provide suitable accommodations for the meeting, to verify and report upon the credentials of membership, to receive and announce all essays and memoirs voluntarily communicated, either by members of the Association, or by others through them, and to determine the order in which such papers are to be read and considered.

The Committee of Publication, of which the Secretaries and Treasurer must constitute a part, shall have charge of preparing for the press, and of publishing and distributing such of the proceedings, transactions, and memoirs of the Association, as may be ordered to be published. The six members of this Committee, who have not the immediate management of the funds, shall also, in their own names, as agents for the Association, hold the bond of the Treasurer for the faithful execution of his office, and shall annually audit and authenticate his accounts, and present a statement of the same in the annual report of the Committee; which report shall specify the character and cost of the publications of the Association during the year, the number of copies still at the disposal of the meeting, the funds on hand for further operations, and the probable amount of the assessment to be laid on each member of the Association for covering its annual expenditures.

The Committee of Publication shall be instructed to print, conspicuously, at the beginning of the forthcoming volume of the *Transactions*, the following disclaimer, viz: The American Medical Association, although formally accepting and publishing the reports of the various standing committees, holds itself wholly irresponsible

for the opinions, theories, or criticisms therein contained, except when so decided by special resolution.

The Committee of Publication shall have power to furnish the chairmen of committees on epidemics with extra copies of their reports, respectively, at the expense of the Association—the said extra copies not to exceed one hundred.

It shall be the duty of the Publication Committee to append to each volume of the *Transactions*, hereafter published, a copy of the Constitution of the Association.

Every paper received by this Association and ordered to be published, and all plates or other means of illustration, shall be considered the exclusive property of the Association, and shall be published and sold for the exclusive benefit of the Association.

No report or other paper shall be entitled to publication in the volume for the year in which it shall be presented to the Association, unless it be placed in the hands of the Committee of Publication on or before the first of June. It must also be so prepared as to require no material alteration, or addition at the hands of its author.

Authors of papers are required to return their proofs within two weeks after their reception; otherwise they will be passed over and omitted from the volume.

The Committee of Publication shall be instructed to append the Code of Ethics of the American Medical Association to each volume of its annual *Transactions*.

It shall be the duty of the Committee of Publication to fix the price at which the printed *Transactions* of each session will be furnished to others than delegates and members; provided, that in no case shall the said price be less than three dollars.

The Committee on Prize Essays.—A committee of five members shall be appointed, to be called the Committee on Prize Essays, whose duty it shall be, in the interval between the present and the next succeeding sessions, to receive papers upon any subject, from any persons who may choose to send them, to decide upon the merits of these papers, and to select for presentation to the Association, at its next session, such as they may deem worthy of being thus presented.

The Committee on Prize Essays shall have power to form such regulations as to the mode in which the papers are to be presented and as to the observing of secrecy, as they may think proper.

The selection of the members of this committee shall be referred

to the Nominating Committee, whose duty it will be to appoint the chairmen of the several special committees, as above directed, with this restriction, that the individuals composing it shall reside in the same neighborhood.

Two prizes of one hundred dollars each shall be awarded to the best two volunteer communications reported on favorably by the Committee, and directed by the Association to be published.

All voluntary communications hereafter presented to the Association, shall be referred to a special committee of —, to be appointed by the President on the first day of each annual meeting, whose duty it shall be to examine such communications, and report upon the propriety of the presentation and reference to the Committee of Publication.

Special committees on *Medical Education*, and *Medical Literature*, shall be appointed, consisting each of five members, and the Nominating Committee shall be instructed to nominate such committees to the Association.

A standing committee shall be appointed by this Association to procure memorials of the eminent and worthy dead among the distinguished physicians of our country, and present them to this Association for publication in their *Transactions*.

A standing committee of — members shall be appointed by this Association, on the subject of Insanity, as it prevails in this country, including its causation—as hereditary transmission; educational influences—physical and moral, social and political institutions, &c.; its forms and complications; curability; means of prevention, &c.

VI. FUNDS AND APPROPRIATIONS.

Funds shall be raised by the Association for meeting its current expenses and awards from year to year, but never with the view of creating a permanent income from investments. Funds may be obtained by an equal assessment of not more than three dollars annually, on each of the members; by individual voluntary contributions for specific objects; and by the sale and disposal of publications, or of works prepared for publication.

The funds may be appropriated for defraying the expenses of the annual meetings; for publishing the proceedings, memoirs, and transactions of the Association; for enabling the standing committees to fulfil their respective duties, conduct their correspondence,

and procure the materials necessary for the completion of their stated annual reports; for the encouragement of scientific investigations, by prizes and awards of merit; and for defraying the expenses incidental to specific investigations under the instruction of the Association, where such investigations have been accompanied with an order on the Treasurer to supply the funds necessary for carrying them into effect.

VII. PROVISION FOR AMENDMENTS.

No amendment or alteration shall be made in any of these articles, except at the annual meeting next subsequent to that at which such amendment or alteration may have been proposed; and then only by the voice of three-fourths of all the members in attendance.

And, in acknowledgment of having adopted the foregoing propositions, and of our willingness to abide by them, and use our endeavors to carry into effect the objects of this Association, as above set forth—we have hereunto set our names.

NAMES OF MEMBERS.	RESIDENCE.	INSTITUTIONS REPRESENTED.

In connection with the foregoing "Plan of Organization," the following was adopted as one of the ordinances, or by-laws of the Association, viz:—

THE ORDER OF BUSINESS.

The order of business at the annual meetings of the American Medical Association shall at all times be subject to the vote of three-fourths of all the members in attendance; and, until permanently altered, except when for a time suspended, it shall be as follows, viz:—

1. The temporary organization of the meeting preparatory to the election of officers.

2. The report of the Committee of Arrangements on the credentials of members; after the latter have registered their names and addresses, and the titles of the institutions which they represent.

3. The calling of the roll.

4. The election of officers.

5. The reading of minutes.

6. The reception of members not present at the opening of the meeting, and the reading of notes from absentees.

7. The reception of members by invitation.

8. The reading and consideration of the stated annual reports from the standing committees.¹

9. The selection of the next place of annual meeting.

10. The new appointments to fill the standing committees.

11. The choice of permanent members by vote.

12. Resolutions introducing new business, and instructions to the permanent committees.

13. The reading and discussion of voluntary communications introduced through the Committee of Arrangements.

14. Unfinished and miscellaneous business.

15. Adjournment.

¹ At the meeting in Louisville it was recommended to divide the Association into sections, in order to facilitate the transaction of business, and the Committee of Arrangements for the ensuing year was requested to provide suitable accommodations for the services of these sections, and each section was further authorized to make such arrangements as may be required for the proper transaction of its business.

The following sections were recommended :—

1. Anatomy and Physiology.

2. Chemistry and Materia Medica.

3. Practical Medicine and Obstetrics.

4. Surgery.

5. Meteorology, Medical Topography, and Epidemic Diseases.

6. Medical Jurisprudence and Hygiene.

O R D I N A N C E S.

The following *Resolutions* adopted at different meetings of the Association, though not incorporated into the *Plan of Organization*, constitute a portion of the *Regulations* for the government of the Association.

RESOLUTIONS ADOPTED AT THE FOURTH ANNUAL MEETING, HELD IN CHARLESTON, IN 1851.

(See TRANSACTIONS, vol. iv.)

Resolved, That committees of three be appointed to investigate and report severally, on the following subjects:—

- 1st. Causes of tubercular diathesis.
- 2d. Blending and conversion of the types of fever.
- 3d. The mutual relations of yellow fever and bilious remittent fever.
- 4th. Epidemic erysipelas.
- 5th. Acute and chronic diseases of the neck of the uterus.
- 6th. Dengue.
- 7th. The milk sickness so called.
- 8th. Endemic prevalence of tetanus.
- 9th. Diseases of parasitic origin.
- 10th. Physiological peculiarities and diseases of the Negro.
- 11th. The action of water on lead pipes, and the diseases which proceed from it.
- 12th. The alkaloids which may be substituted for quinia.
- 13th. Permanent cure of reducible hernia.
- 14th. Results of surgical operations for the relief of malignant diseases.
- 15th. Statistics of operations for removal of stone in the bladder.
- 16th. Cold water dressings.
- 17th. The sanitary principles applicable to the construction of dwellings.
- 18th. The toxicological and medicinal properties of our crypto-gamic plants.

19th. Agency of the refrigeration produced through upward radiation of heat as an exciting cause of disease.

20th. Epidemic diseases of New England and New York.

21st. Epidemic diseases of Pennsylvania, New Jersey, Delaware, and Maryland.

22d. Epidemic diseases of Virginia and North Carolina.

23d. Epidemic diseases of South Carolina, Georgia, Florida, and Alabama.

24th. Epidemic diseases of Mississippi, Louisiana, Texas, and Arkansas.

25th. Epidemic diseases of Tennessee and Kentucky.

26th. Epidemic diseases of Missouri, Illinois, Iowa, and Wisconsin.

27th. Epidemic diseases of Indiana, Ohio, and Michigan.

Resolved, That a Committee on Nomination be appointed, whose duty it shall be to nominate one chairman for each of the above committees.

Resolved, That each of the chairmen thus nominated shall select, at his earliest convenience, two members of the Association to complete the committee.

Resolved, That the delegates to the Association be requested to appoint committees, at one or more central points within their respective States, for the purpose of aiding the Committee of Publication in procuring subscribers, and in distributing the printed volumes of *Transactions* to said subscribers, as well as to the members of the Association residing within the neighborhood of the said committees respectively. (Vol. vii. p. 22.)

Resolved, That this Association appoint a special committee for each State and Territory represented of — members, whose duty it shall be to report upon its medical topography, epidemic diseases and the most successful treatment thereof, and that the same shall continue to hold their office for three years.

Resolved, That, as other States and Territories, not now represented, become so by delegates duly appointed to this National Association, similar committees shall be appointed for like purposes, and that they also shall hold their office for three years.

Resolved, That in the appointment of gentlemen of education and experience in the affairs of their own State we have the best guarantee that the important objects we seek will be more satisfactorily accomplished, and the profession as well as the public interest thereby better served.

Resolved, That the committees heretofore appointed by this Association, at its session in Charleston, for a similar object, be and the same are hereby discharged. (Vol. viii.)

Resolved, That the resolutions adopted by the Association at its session in St. Louis, in 1854, requiring the Committee of Publication to be selected from the place where the meeting should be held, be repealed. (Vol. ix. p. 24.)

Resolved, That the general meeting of the Association, after this day, shall be restricted to the morning sessions; and the afternoon sessions, commencing at 3 o'clock, shall be devoted to the hearing of papers and discussions in the several sections.

Resolved, That each section shall choose its own officers, and make its own rules of order.

Resolved, That all essays, voluntary communications and reports, except those of the officers of the Association, the reports of the Committees on Medical Education, Medical Literature, and Prize Essays, shall be first presented to the Association by a brief abstract, and referred to the appropriate sections, in which they shall be examined and discussed, after which they shall be returned to the Secretary of the Association, accompanied by an expression of opinion, as to whether they are worthy of publication or not. And the Secretary shall pass all such as are thus designated to be worthy, directly to the Committee of Publication; and such as are not so designated, shall be retained by the Secretary, or returned to their authors, as the latter may indicate. (Vol. x. pp. 28, 29.)

Resolved, That this Association will not recognize, as regularly organized, any college which does not require evidence of suitable *preliminary education* from all applicants for collegiate instruction. (Vol. x. p. 33.)

Resolved, That this Association recognizes, as a regularly organized medical college, one which has been represented at any meeting of this Convention, and which complies with the preceding rules and directions. (Vol. x. p. 34.)

Resolved, That no one appointed on a special committee, who fails to report at the meeting next succeeding the one at which he is appointed, shall be continued on such committee, or appointed on any other, unless a satisfactory excuse is offered. (Vol. x. p. 38.)

•

CODE OF ETHICS

OF THE

AMERICAN MEDICAL ASSOCIATION,

ADOPTED MAY, 1847.

CODE OF MEDICAL ETHICS.

OF THE DUTIES OF PHYSICIANS TO THEIR PATIENTS, AND OF THE OBLIGATIONS OF PATIENTS TO THEIR PHYSICIANS.

ART. I.—*Duties of physicians to their patients.*

§ 1. A physician should not only be ever ready to obey the calls of the sick, but his mind ought also to be imbued with the greatness of his mission, and the responsibility he habitually incurs in its discharge. Those obligations are the more deep and enduring, because there is no tribunal other than his own conscience to adjudge penalties for carelessness or neglect. Physicians should, therefore, minister to the sick with due impressions of the importance of their office; reflecting that the ease, the health, and the lives of those committed to their charge, depend on their skill, attention, and fidelity. They should study, also, in their deportment, so to unite *tenderness* with *firmness*, and *condescension* with *authority*, as to inspire the minds of their patients with gratitude, respect, and confidence.

§ 2. Every case committed to the charge of a physician should be treated with attention, steadiness, and humanity. Reasonable indulgence should be granted to the mental imbecility and caprices of the sick. Secrecy and delicacy, when required by peculiar circumstances, should be strictly observed; and the familiar and confidential intercourse to which physicians are admitted in their professional visits, should be used with discretion, and with the most scrupulous regard to fidelity and honor. The obligation of secrecy extends beyond the period of professional services;—none of the privacies of personal and domestic life, no infirmity of disposition or flaw of character observed during professional attendance, should ever be divulged by the physician except when he is imperatively required to do so. The force and necessity of this obli-

gation are indeed so great, that professional men have, under certain circumstances, been protected in their observance of secrecy by courts of justice.

§ 3. Frequent visits to the sick are in general requisite, since they enable the physician to arrive at a more perfect knowledge of the disease—to meet promptly every change which may occur, and also tend to preserve the confidence of the patient. But unnecessary visits are to be avoided, as they give useless anxiety to the patient, tend to diminish the authority of the physician, and render him liable to be suspected of interested motives.

§ 4. A physician should not be forward to make gloomy prognostications, because they savor of empiricism, by magnifying the importance of his services in the treatment or cure of the disease. But he should not fail, on proper occasions, to give to the friends of the patient timely notice of danger when it really occurs; and even to the patient himself, if absolutely necessary. This office, however, is so peculiarly alarming when executed by him, that it ought to be declined whenever it can be assigned to any other person of sufficient judgment and delicacy. For, the physician should be the minister of hope and comfort to the sick; that, by such cordials to the drooping spirit, he may smooth the bed of death, revive expiring life, and counteract the depressing influence of those maladies which often disturb the tranquillity of the most resigned in their last moments. The life of a sick person can be shortened not only by the acts, but also by the words or the manner of a physician. It is, therefore, a sacred duty to guard himself carefully in this respect, and to avoid all things which have a tendency to discourage the patient and to depress his spirits.

§ 5. A physician ought not to abandon a patient because the case is deemed incurable; for his attendance may continue to be highly useful to the patient, and comforting to the relatives around him, even in the last period of a fatal malady, by alleviating pain and other symptoms, and by soothing mental anguish. To decline attendance, under such circumstances, would be sacrificing to fanciful delicacy and mistaken liberality, that moral duty, which is independent of, and far superior to, all pecuniary consideration.

§ 6. Consultations should be promoted in difficult or protracted cases, as they give rise to confidence, energy, and more enlarged views in practice.

§ 7. The opportunity which a physician not unfrequently enjoys of promoting and strengthening the good resolutions of his patients,

suffering under the consequences of vicious conduct, ought never to be neglected. His counsels, or even remonstrances, will give satisfaction, not offence, if they be proffered with politeness, and evince a genuine love of virtue, accompanied by a sincere interest in the welfare of the person to whom they are addressed.

ART. II.—*Obligations of patients to their physicians.*

§ 1. The members of the medical profession, upon whom is enjoined the performance of so many important and arduous duties towards the community, and who are required to make so many sacrifices of comfort, ease, and health, for the welfare of those who avail themselves of their services, certainly have a right to expect and require, that their patients should entertain a just sense of the duties which they owe to their medical attendants.

§ 2. The first duty of a patient is to select as his medical adviser one who has received a regular professional education. In no trade or occupation, do mankind rely on the skill of an untaught artist; and in medicine, confessedly the most difficult and intricate of the sciences, the world ought not to suppose that knowledge is intuitive.

§ 3. Patients should prefer a physician whose habits of life are regular, and who is not devoted to company, pleasure, or to any pursuit incompatible with his professional obligations. A patient should, also, confide the care of himself and family, as much as possible, to one physician; for a medical man, who has become acquainted with the peculiarities of constitution, habits and predispositions, of those he attends, is more likely to be successful in his treatment than one who does not possess that knowledge.

A patient who has thus selected his physician, should always apply for advice in what may appear to him trivial cases, for the most fatal results often supervene on the slightest accidents. It is of still more importance that he should apply for assistance in the forming stage of violent diseases; it is to a neglect of this precept that medicine owes much of the uncertainty and imperfection with which it has been reproached.

§ 4. Patients should faithfully and unreservedly communicate to their physician the supposed cause of their disease. This is the more important, as many diseases of a mental origin simulate those depending on external causes, and yet are only to be cured by ministering to the mind diseased. A patient should never be afraid of thus making his physician his friend and adviser; he

should always bear in mind that a medical man is under the strongest obligations of secrecy. Even the female sex should never allow feelings of shame or delicacy to prevent their disclosing the seat, symptoms, and causes of complaints peculiar to them. However commendable a modest reserve may be in the common occurrences of life, its strict observance in medicine is often attended with the most serious consequences, and a patient may sink under a painful and loathsome disease, which might have been readily prevented had timely intimation been given to the physician.

§ 5. A patient should never weary his physician with a tedious detail of events or matters not appertaining to his disease. Even as relates to his actual symptoms, he will convey much more real information by giving clear answers to interrogatories, than by the most minute account of his own framing. Neither should he obtrude upon his physician the details of his business nor the history of his family concerns.

§ 6. The obedience of a patient to the prescriptions of his physician should be prompt and implicit. He should never permit his own crude opinions as to their fitness, to influence his attention to them. A failure in one particular may render an otherwise judicious treatment dangerous, and even fatal. This remark is equally applicable to diet, drink, and exercise. As patients become convalescent, they are very apt to suppose that the rules prescribed for them may be disregarded, and the consequence, but too often, is a relapse. Patients should never allow themselves to be persuaded to take any medicine whatever, that may be recommended to them by the self-constituted doctors and doctresses, who are so frequently met with, and who pretend to possess infallible remedies for the cure of every disease. However simple some of their prescriptions may appear to be, it often happens that they are productive of much mischief, and in all cases they are injurious, by contravening the plan of treatment adopted by the physician.

§ 7. A patient should, if possible, avoid even the *friendly visits of a physician* who is not attending him—and when he does receive them, he should never converse on the subject of his disease, as an observation may be made, without any intention of interference, which may destroy his confidence in the course he is pursuing, and induce him to neglect the directions prescribed to him. A patient should never send for a consulting physician

without the express consent of his own medical attendant. It is of great importance that physicians should act in concert; for, although their modes of treatment may be attended with equal success when employed singly, yet conjointly they are very likely to be productive of disastrous results.

§ 8. When a patient wishes to dismiss his physician, justice and common courtesy require that he should declare his reasons for so doing.

§ 9. Patients should always, when practicable, send for their physician in the morning, before his usual hour of going out; for, by being early aware of the visits he has to pay during the day, the physician is able to apportion his time in such a manner as to prevent an interference of engagements. Patients should also avoid calling on their medical adviser unnecessarily during the hours devoted to meals or sleep. They should always be in readiness to receive the visits of their physician, as the detention of a few minutes is often of serious inconvenience to him.

§ 10. A patient should, after his recovery, entertain a just and enduring sense of the value of the services rendered him by his physician; for these are of such a character, that no mere pecuniary acknowledgment can repay or cancel them.

OF THE DUTIES OF PHYSICIANS TO EACH OTHER, AND TO THE PROFESSION AT LARGE.

ART. I.—*Duties for the support of professional character.*

§ 1. Every individual, on entering the profession, as he becomes thereby entitled to all its privileges and immunities, incurs an obligation to exert his best abilities to maintain its dignity and honor, to exalt its standing, and to extend the bounds of its usefulness. He should, therefore, observe strictly, such laws as are instituted for the government of its members;—should avoid all contumelious and sarcastic remarks relative to the faculty, as a body; and while, by unwearied diligence, he resorts to every honorable means of enriching the science, he should entertain a due respect for his seniors, who have, by their labors, brought it to the elevated condition in which he finds it.

§ 2. There is no profession, from the members of which greater purity of character, and a higher standard of moral excellence are required, than the medical; and to attain such eminence, is a duty every physician owes alike to his profession and to his

patients. It is due to the latter, as without it he cannot command their respect and confidence, and to both, because no scientific attainments can compensate for the want of correct moral principles. It is also incumbent upon the faculty to be temperate in all things, for the practice of physic requires the unremitting exercise of a clear and vigorous understanding; and, on emergencies, for which no professional man should be unprepared, a steady hand, an acute eye, and an unclouded head may be essential to the well-being, and even to the life, of a fellow creature.

§ 3. It is derogatory to the dignity of the profession to resort to public advertisements, or private cards, or handbills, inviting the attention of individuals affected with particular diseases—publicly offering advice and medicine to the poor gratis, or promising radical cures; or to publish cases and operations in the daily prints, or suffer such publications to be made; to invite laymen to be present at operations, to boast of cures and remedies, to adduce certificates of skill and success, or to perform any other similar acts. These are the ordinary practices of empirics, and are highly reprehensible in a regular physician.

§ 4. Equally derogatory to professional character is it, for a physician to hold a patent for any surgical instrument or medicine; or to dispense a secret *nostrum*, whether it be the composition or exclusive property of himself or of others. For, if such *nostrum* be of real efficacy, any concealment regarding it is inconsistent with beneficence and professional liberality; and, if mystery alone give it value and importance, such craft implies either disgraceful ignorance or fraudulent avarice. It is also reprehensible for physicians to give certificates attesting the efficacy of patent or secret medicines, or in any way to promote the use of them.

ART. II.—*Professional services of physicians to each other.*

§ 1. All practitioners of medicine, their wives, and their children while under the paternal care, are entitled to the gratuitous services of any one or more of the faculty residing near them, whose assistance may be desired. A physician afflicted with disease is usually an incompetent judge of his own case; and the natural anxiety and solicitude which he experiences at the sickness of a wife, a child, or any one who, by the ties of consanguinity, is rendered peculiarly dear to him, tend to obscure his judgment, and produce timidity and irresolution in his practice. Under such circumstances, medical men are peculiarly dependent upon each

other, and kind offices and professional aid should always be cheerfully and gratuitously afforded. Visits ought not, however, to be obtruded officiously; as such unasked civility may give rise to embarrassment, or interfere with that choice on which confidence depends. But, if a distant member of the faculty, whose circumstances are affluent, request attendance, and an honorarium be offered, it should not be declined, for no pecuniary obligation ought to be imposed, which the party receiving it would wish not to incur.

ART. III.—*Of the duties of physicians as respects vicarious offices.*

§ 1. The affairs of life, the pursuit of health, and the various accidents and contingencies to which a medical man is peculiarly exposed, sometimes require him temporarily to withdraw from his duties to his patients, and to request some of his professional brethren to officiate for him. Compliance with this request is an act of courtesy, which should always be performed with the utmost consideration for the interest and character of the family physician, and when exercised for a short period, all the pecuniary obligations for such service should be awarded to him. But if a member of the profession neglect his business in quest of pleasure and amusement, he cannot be considered as entitled to the advantages of the frequent and long-continued exercise of this fraternal courtesy, without awarding to the physician who officiates the fees arising from the discharge of his professional duties.

In obstetrical and important surgical cases, which give rise to unusual fatigue, anxiety, and responsibility, it is just that the fees accruing therefrom should be awarded to the physician who officiates.

ART. IV.—*Of the duties of physicians in regard to consultations.*

§ 1. A regular medical education furnishes the only presumptive evidence of professional abilities and acquirements, and ought to be the only acknowledged right of an individual to the exercise and honors of his profession. Nevertheless, as in consultations the good of the patient is the sole object in view, and this is often dependent on personal confidence, no intelligent regular practitioner, who has a license to practise from some medical board of known and acknowledged respectability, recognized by this association, and who is in good moral and professional standing in the place in which he resides, should be fastidiously excluded from

fellowship, or his aid refused in consultation, when it is requested by the patient. But no one can be considered as a regular practitioner or a fit associate in consultation, whose practice is based on an exclusive dogma, to the rejection of the accumulated experience of the profession, and of the aids actually furnished by anatomy, physiology, pathology, and organic chemistry.

§ 2. In consultations, no rivalry or jealousy should be indulged; candor, probity, and all due respect should be exercised towards the physician having charge of the case.

§ 3. In consultations, the attending physician should be the first to propose the necessary questions to the sick; after which the consulting physician should have the opportunity to make such further inquiries of the patient as may be necessary to satisfy him of the true character of the case. Both physicians should then retire to a private place for deliberation; and the one first in attendance should communicate the directions agreed upon to the patient or his friends, as well as any opinions which it may be thought proper to express. But no statement or discussion of it should take place before the patient or his friends, except in the presence of all the faculty attending, and by their common consent; and no *opinions* or *prognostications* should be delivered, which are not the result of previous deliberation and concurrence.

§ 4. In consultations, the physician in attendance should deliver his opinion first; and when there are several consulting, they should deliver their opinions in the order in which they have been called in. No decision, however, should restrain the attending physician from making such variations in the mode of treatment, as any subsequent unexpected change in the character of the case may demand. But such variation, and the reasons for it, ought to be carefully detailed at the next meeting in consultation. The same privilege belongs also to the consulting physician if he is sent for in an emergency, when the regular attendant is out of the way, and similar explanations must be made at the next consultation.

§ 5. The utmost punctuality should be observed in the visits of physicians when they are to hold consultation together, and this is generally practicable, for society has been considerate enough to allow the plea of a professional engagement to take precedence of all others, and to be an ample reason for the relinquishment of any present occupation. But, as professional engagements may sometimes interfere, and delay one of the parties, the physician who first arrives should wait for his associate a reasonable period, after

which the consultation should be considered as postponed to a new appointment. If it be the attending physician who is present, he will of course see the patient and prescribe; but if it be the consulting one, he should retire, except in case of emergency, or when he has been called from a considerable distance, in which latter case he may examine the patient, and give his opinion in *writing*, and *under seal*, to be delivered to his associate.

§ 6. In consultations, theoretical discussions should be avoided, as occasioning perplexity and loss of time. For there may be much diversity of opinion concerning speculative points, with perfect agreement in those modes of practice which are founded, not on hypothesis, but on experience and observation.

§ 7. All discussions in consultation should be held as secret and confidential. Neither by words nor manner should any of the parties to a consultation assert or insinuate, that any part of the treatment pursued did not receive his assent. The responsibility must be equally divided between the medical attendants—they must equally share the credit of success as well as the blame of failure.

§ 8. Should an irreconcilable diversity of opinion occur when several physicians are called upon to consult together, the opinion of the majority should be considered as decisive; but if the numbers be equal on each side, then the decision should rest with the attending physician. It may, moreover, sometimes happen, that two physicians cannot agree in their views of the nature of a case, and the treatment to be pursued. This is a circumstance much to be deplored, and should always be avoided, if possible, by mutual concessions, as far as they can be justified by a conscientious regard for the dictates of judgment. But, in the event of its occurrence, a third physician should, if practicable, be called to act as umpire; and, if circumstances prevent the adoption of this course, it must be left to the patient to select the physician in whom he is most willing to confide. But, as every physician relies upon the rectitude of his judgment, he should, when left in the minority, politely and consistently retire from any farther deliberation in the consultation, or participation in the management of the case.

§ 9. As circumstances sometimes occur to render a *special consultation* desirable when the continued attendance of two physicians might be objectionable to the patient, the member of the faculty whose assistance is required in such cases, should sedulously guard against all future unsolicited attendance. As such consultations

require an extraordinary portion both of time and attention, at least a double honorarium may be reasonably expected.

§ 10. A physician who is called upon to consult, should observe the most honorable and scrupulous regard for the character and standing of the practitioner in attendance; the practice of the latter, if necessary, should be justified as far as it can be, consistently with a conscientious regard for truth, and no hint or insinuation should be thrown out which could impair the confidence reposed in him, or affect his reputation. The consulting physician should also carefully refrain from any of those extraordinary attentions or assiduities, which are too often practised by the dishonest for the base purpose of gaining applause, or ingratiating themselves into the favor of families and individuals.

ART. V.—*Duties of physicians in cases of interference.*

§ 1. Medicine is a liberal profession, and those admitted into its ranks should found their expectations of practice upon the extent of their qualifications, not on intrigue or artifice.

§ 2. A physician in his intercourse with a patient under the care of another practitioner, should observe the strictest caution and reserve. No meddling inquiries should be made—no disingenuous hints given relative to the nature and treatment of his disorder; nor any course of conduct pursued that may directly or indirectly tend to diminish the trust reposed in the physician employed.

§ 3. The same circumspection and reserve should be observed when, from motives of business or friendship, a physician is prompted to visit an individual who is under the direction of another practitioner. Indeed, such visits should be avoided, except under peculiar circumstances; and when they are made, no particular inquiries should be instituted relative to the nature of the disease, or the remedies employed, but the topics of conversation should be as foreign to the case as circumstances will admit.

§ 4. A physician ought not to take charge of or prescribe for a patient who has recently been under the care of another member of the faculty in the same illness, except in cases of sudden emergency, or in consultation with the physician previously in attendance, or when the latter has relinquished the case, or been regularly notified that his services are no longer desired. Under such circumstances, no unjust and illiberal insinuations should be thrown out in relation to the conduct or practice previously pursued, which should be justified as far as candor and regard for truth and probity

will permit; for it often happens that patients become dissatisfied when they do not experience immediate relief, and, as many diseases are naturally protracted, the want of success, in the first stage of treatment, affords no evidence of a lack of professional knowledge and skill.

§ 5. When a physician is called to an urgent case, because the family attendant is not at hand, he ought, unless his assistance in consultation be desired, to resign the care of the patient to the latter immediately on his arrival.

§ 6. It often happens, in cases of sudden illness, or of recent accidents and injuries, owing to the alarm and anxiety of friends, that a number of physicians are simultaneously sent for. Under these circumstances, courtesy should assign the patient to the first who arrives, who should select from those present, any additional assistance that he may deem necessary. In all such cases, however, the practitioner who officiates should request the family physician, if there be one, to be called, and, unless his farther attendance be requested, should resign the case to the latter on his arrival.

§ 7. When a physician is called to the patient of another practitioner, in consequence of the sickness or absence of the latter, he ought, on the return or recovery of the regular attendant, and with the consent of the patient, to surrender the case.

[The expression, "Patient of another Practitioner," is understood to mean a patient who may have been under the charge of another practitioner at the time of the attack of sickness, or departure from home of the latter, or who may have called for his attendance during his absence or sickness, or in any other manner given it to be understood that he regarded the said physician as his regular medical attendant.]

§ 8. A physician when visiting a sick person in the country may be desired to see a neighboring patient who is under the regular direction of another physician, in consequence of some sudden change or aggravation of symptoms. The conduct to be pursued on such an occasion is to give advice adapted to present circumstances; to interfere no further than is absolutely necessary with the general plan of treatment; to assume no future direction, unless it be expressly desired; and, in this last case, to request an immediate consultation with the practitioner previously employed.

§ 9. A wealthy physician should not give advice *gratis* to the

affluent; because his doing so is an injury to his professional brethren. The office of a physician can never be supported as an exclusively beneficent one; and it is defrauding, in some degree, the common funds for its support, when fees are dispensed which might justly be claimed.

§ 10. When a physician who has been engaged to attend a case of midwifery is absent, and another is sent for, if delivery is accomplished during the attendance of the latter, he is entitled to the fee, but should resign the patient to the practitioner first engaged.

ART. VI.—*Of differences between physicians.*

§ 1. Diversity of opinion and opposition of interest, may, in the medical as in other professions, sometimes occasion controversy and even contention. Whenever such cases unfortunately occur, and cannot be immediately terminated, they should be referred to the arbitration of a sufficient number of physicians, or a *court-medical*.

§ 2. As peculiar reserve must be maintained by physicians towards the public, in regard to professional matters, and as there exist numerous points in medical ethics and etiquette through which the feelings of medical men may be painfully assailed in their intercourse with each other, and which cannot be understood or appreciated by general society, neither the subject-matter of such differences nor the adjudication of the arbitrators should be made public, as publicity in a case of this nature may be personally injurious to the individuals concerned, and can hardly fail to bring discredit on the faculty.

ART. VII.—*Of pecuniary acknowledgments.*

Some general rules should be adopted by the faculty, in every town or district, relative to *pecuniary acknowledgments* from their patients; and it should be deemed a point of honor to adhere to these rules with as much uniformity as varying circumstances will admit.

OF THE DUTIES OF THE PROFESSION TO THE PUBLIC, AND OF THE OBLIGATIONS OF THE PUBLIC TO THE PROFESSION.

ART. I.—*Duties of the profession to the public.*

§ 1. As good citizens, it is the duty of physicians to be ever vigilant for the welfare of the community, and to bear their part in sustaining its institutions and burdens; they should also be ever ready to give counsel to the public in relation to matters especially appertaining to their profession, as on subjects of medical police, public hygiene, and legal medicine. It is their province to enlighten the public in regard to quarantine regulations—the location, arrangement, and dietaries of hospitals, asylums, schools, prisons, and similar institutions—in relation to the medical police of towns, as drainage, ventilation, &c.—and in regard to measures for the prevention of epidemic and contagious diseases; and when pestilence prevails, it is their duty to face the danger, and to continue their labors for the alleviation of the suffering, even at the jeopardy of their own lives.

§ 2. Medical men should also be always ready, when called on by the legally constituted authorities, to enlighten coroners' inquests, and courts of justice, on subjects strictly medical—such as involve questions relating to sanity, legitimacy, murder by poisons or other violent means, and in regard to the various other subjects embraced in the science of Medical Jurisprudence. But in these cases, and especially where they are required to make *post-mortem* examination, it is just, in consequence of the time, labor, and skill required, and the responsibility and risk they incur, that the public should award them a proper honorarium.

§ 3. There is no profession, by the members of which eleemosynary services are more liberally dispensed than the medical, but justice requires that some limit should be placed to the performance of such good offices. Poverty, professional brotherhood, and certain of the public duties referred to in the first section of this article, should always be recognized as presenting valid claims for gratuitous services; but neither institutions endowed by the public or by rich individuals, societies for mutual benefit, for the insurance of lives or for analogous purposes, nor any profession or occupation, can be admitted to possess such privilege. Nor can it be justly expected of physicians to furnish certificates of inability to

serve on juries, to perform militia duty, or to testify to the state of health of persons wishing to insure their lives, obtain pensions, or the like, without a pecuniary acknowledgment. But to individuals in indigent circumstances, such professional services should always be cheerfully and freely accorded.

§ 4. It is the duty of physicians, who are frequent witnesses of the enormities committed by quackery, and the injury to health and even destruction of life caused by the use of quack medicines, to enlighten the public on these subjects, to expose the injuries sustained by the unwary from the devices and pretensions of artful empirics and impostors. Physicians ought to use all the influence which they may possess, as professors in Colleges of Pharmacy, and by exercising their option in regard to the shops to which their prescriptions shall be sent, to discourage druggists and apothecaries from vending quack or secret medicines, or from being in any way engaged in their manufacture and sale.

ART. II.—*Obligations of the public to physicians.*

§ 1. The benefits accruing to the public, directly and indirectly, from the active and unwearied beneficence of the profession, are so numerous and important, that physicians are justly entitled to the utmost consideration and respect from the community. The public ought likewise to entertain a just appreciation of medical qualifications; to make a proper discrimination between true science and the assumptions of ignorance and empiricism—to afford every encouragement and facility for the acquisition of medical education—and no longer to allow the statute-books to exhibit the anomaly of exacting knowledge from physicians, under a liability to heavy penalties, and of making them obnoxious to punishment for resorting to the only means of obtaining it.

OFFICERS

AND

PERMANENT MEMBERS.

CATALOGUE
OF THE
OFFICERS AND PERMANENT MEMBERS
OF THE
AMERICAN MEDICAL ASSOCIATION.

OFFICERS FOR 1863-64.

PRESIDENT.

ALDEN MARCH, *New York.*

VICE-PRESIDENTS.

JAMES COUPER, *Delaware.*

DAVID PRINCE, *Illinois.*

C. C. COX, *Maryland.*

E. S. CARR, *Wisconsin.*

SECRETARIES.

H. A. JOHNSON, *Illinois.*

GUIDO FURMAN, *New York.*

TREASURER.

CASPAR WISTER, *Pennsylvania.*

PERMANENT MEMBERS.

Those who have an obelisk [†] prefixed to their names are dead.

MAINE.

Allen, W. H.	<i>Orono.</i>
Boutelle, N. R.	<i>Waterville.</i>
Bradbury, James C.	<i>Oldtown.</i>
Chadwick, George H.	<i>Portland.</i>
Chase, Sumner B.	<i>do.</i>
Dickinson, J. P.	<i>Bangor.</i>
Emerson, N.	<i>Orland.</i>
Fessenden, C. S. D.	<i>Portland.</i>
Frye, Thomas	<i>Rockland.</i>
Fuller, A. J.	<i>Bath.</i>
Garcelon, Alonzo	<i>Lewiston.</i>
Harris, Nathan C.	<i>Lewiston Falls.</i>
Hill, Hiram H.	<i>Augusta.</i>
Holmes, Job	<i>Calais.</i>
Hunkins, Seth C.	<i>Windham.</i>
Libby, Abial	<i>Richmond.</i>
Lincoln, Isaac	<i>Brunswick.</i>
†McAlister, Asa	<i>Ellsworth.</i>
McKeen, James	<i>Topsham.</i>
McRuer, D.	<i>Bangor.</i>
Millet, Charles	<i>Lewiston, Androscoggin Co.</i>
Monroe, Hollis	<i>Belfast.</i>
Monroe, N. P.	<i>do.</i>
Nourse, Amos	<i>Bath.</i>
Oakes, Sylvester	<i>Auburn.</i>
Page, A. F.	<i>Hancock.</i>
Page, H. N.	<i>Penobscot.</i>
Palmer, G. S.	<i>Gardner.</i>
Stockbridge, T. G.	<i>Bath.</i>
Swan, Chas. E.	<i>Calais.</i>
Tewksbury, Samuel H.	<i>Portland.</i>
Weston, J. C.	<i>Bangor.</i>

NEW HAMPSHIRE.

Abbott, James B.	<i>Sanbornton.</i>
Bancroft, J. P.	<i>Concord.</i>
†Bartlett, Josiah	<i>Stratham.</i>
Bartlett, Ezra	<i>Exeter.</i>
Batchelder, Daniel H.	<i>Fitzwilliam.</i>
Batcheller, James	<i>do.</i>
Boyden, F.	<i>Hinsdale.</i>
†Brown, Thomas	<i>Manchester.</i>
Buck, W. D.	<i>do.</i>
Carr, Alonzo F.	<i>Goffstown.</i>
Carr, John	<i>Sanbornton.</i>
Carter, Ezra	<i>Concord.</i>
Chase, Charles	<i>Deerfield.</i>
Conant, David S.	<i>Burlington.</i>
Crosby, Dixi	<i>Hanover.</i>
Crosby, Josiah	<i>Manchester.</i>
Crosby, T. R.	<i>Hanover.</i>
Cummings, Silas	<i>Fitzwilliam.</i>
Currie, T. H.	<i>Enfield.</i>
Dauforth, James	<i>New Boston.</i>
Davis, E. H.	<i>Manchester.</i>
Dickey, Abraham O.	<i>Lyme.</i>
Eastman, Josiah C.	<i>Hamstead.</i>
Eaton, Harrison	<i>Merrimack.</i>
Fernald, John S.	<i>Barrington.</i>
Fitch, Francis P.	<i>Amherst.</i>
Gage, Charles P.	<i>Concord.</i>
Graves, Josiah G.	<i>Nashville.</i>
Hamilton, Cyrus B.	<i>Lyme.</i>
Haynes, Timothy	<i>Concord.</i>
Hill, Levi G.	<i>Dover.</i>
Hubbard, G. H.	<i>Manchester.</i>
Hubbard, Oliver P.	<i>Hanover.</i>
Kelley, S. B.	<i>Franklin.</i>
Marshall, Thomas H.	<i>Mason Village.</i>
Martin, Noah	<i>Dover.</i>
Miller, Luke	<i>Fitzwilliam.</i>
Parker, D. T.	<i>Farmington.</i>
Pearce, H.	<i>Winchester.</i>

Peaslee, Edmund R.	<i>Hanover.</i>
Prescott, William	<i>Concord.</i>
Richardson, Samuel A.	<i>Marlboro'.</i>
†Sanborn, Nathan	<i>Henniker.</i>
Sanborn, Thomas	<i>New Port.</i>
Sargent, J. F.	<i>Concord.</i>
Shackford, Chas. H.	<i>Somersworth.</i>
Smalley, Adoniram	<i>Lyme, Grafton Co.</i>
Smith, Albert	<i>Peterborough.</i>
Smith, Joseph H.	<i>Dover.</i>
Spalding, Phineas	<i>Haverhill.</i>
Spaulding, Edward	<i>Nashua.</i>
Stackpole, P. A.	<i>Dover.</i>
Stone, W. P.	<i>Danbury.</i>
Thayer, W. H.	<i>Keene.</i>
†Twitchell, Amos	<i>do.</i>
Twitchell, George B.	<i>do.</i>
Webster, E. K.	<i>Boscawen.</i>
Whittemore, J. P.	<i>Chester.</i>
†Woodbury, Peter P.	<i>Bedford.</i>

VERMONT.

Allen, C. L.	<i>Middlebury.</i>
Babcock, M. N.	<i>Fairfield.</i>
Bass, Zaccheus	<i>Middlebury.</i>
Campbell, Daniel	<i>Saxton's River.</i>
Carpenter, W.	<i>Burlington.</i>
Carr, Ezra T.	<i>Castleton.</i>
Chandler, Charles B.	<i>Montpelier.</i>
Chapin, Wm. A.	<i>Ludlow.</i>
Clark, C.	<i>Montpelier.</i>
Conant, D. S.	<i>Burlington.</i>
Converse, Shubael	<i>Norwich.</i>
Cushman, Earl	<i>Orwell.</i>
Dana, A. G.	<i>Brandon.</i>
Drew, O. W.	<i>Waterbury.</i>
Emmons, Lewis	
†Hall, Charles	<i>Burlington.</i>
Hatch, Horace	<i>do.</i>
Higginson, Francis J.	<i>Brattleboro'.</i>
Hinckley, I.	<i>Thetford.</i>

Huntington, W. M.	
Janes, Henry	<i>Waterbury.</i>
Jewett, Calvin	<i>St. Johnsbury.</i>
Knowles, Nathan H.	<i>South Hero.</i>
Newell, Selim	<i>Lyndon.</i>
Niles, H. H.	<i>Post Mills.</i>
Perkins, Joseph	<i>Castleton.</i>
Phelps, Edward E.	<i>Windsor.</i>
Pineo, P.	<i>Queechy.</i>
Pitkin, A. S.	<i>Burlington.</i>
Pittman, N. J.	<i>Brattleboro'.</i>
†Ranney, W. R.	<i>Townshend.</i>
Rockwell, W. H.	<i>Brattleboro'.</i>
Sanborn, E. K.	<i>Rutland.</i>
Smith, Orrin	<i>Montpelier.</i>
Spalding, James	<i>do.</i>
Stiles, J. N.	<i>Strafford.</i>
Stiles, Joseph N.	<i>Windsor.</i>
Story, Dyer	<i>West Windsor.</i>
Thayer, S. W.	<i>Burlington.</i>
Washburn, Cyrus	<i>Vernon.</i>
Whiting, Laurin G.	<i>Chester.</i>
Woodward, A. J.	<i>Castleton.</i>
Woodward, Adrian T.	<i>do.</i>
Worcester, E. C.	<i>Thetford.</i>

MASSACHUSETTS.

Abbe, Alanson	<i>Boston.</i>
Abbe, E. B.	<i>do.</i>
Abbott, Samuel L.	<i>do.</i>
Adams, Horace W.	<i>do.</i>
Adams, Horatio	<i>Waltham.</i>
Adams, Nathan	<i>Springfield.</i>
†Adams, Z. Boylston	<i>Boston.</i>
Agassiz, Louis	<i>Cambridge.</i>
Ainsworth, F. S.	<i>Boston.</i>
Alden, Ebenezer	<i>Randolph.</i>
Allen, Nathan	<i>Lowell.</i>
Alley, J. B.	<i>Boston.</i>
Atwood, George	<i>Fair Haven.</i>
Ayer, James	<i>Boston.</i>

Bacon, jr., John	<i>Boston.</i>
Bancroft, Amos B.	<i>Groton.</i>
Bartlett, George	<i>Boston.</i>
Bartlett, Josiah	<i>Concord.</i>
Bartlett, Lyman	<i>New Bedford.</i>
Barton, Edw.	<i>Orange.</i>
†Batcheller, Stephen	<i>Royalston.</i>
Bates, Joseph N.	<i>Worcester.</i>
Bell, Artemus	<i>S. Hampton.</i>
Bell, Cyrus	<i>Feeding Hills.</i>
Bell, Luther V.	<i>Charlestown.</i>
Bemis, David	<i>Chickopee.</i>
Bemis, Jonathan W.	<i>Charlestown.</i>
Bethune, George A.	<i>Boston.</i>
Bigelow, George F.	<i>do.</i>
Bigelow, Henry J.	<i>do.</i>
Bigelow, Jacob	<i>do.</i>
Blake, E. W.	<i>do.</i>
Blake, Jeremiah	<i>Lowell.</i>
Blake, J. E.	<i>Boston.</i>
Blodgett, Julius	<i>West Brookfield.</i>
Bonney, Franklin	<i>Hadley.</i>
Borland, J. Nelson	<i>Boston.</i>
Boutelle, Thomas R.	<i>Fitchburg.</i>
Bowditch, Henry J.	<i>Boston.</i>
Bowen, E.	<i>Barnstable.</i>
Bridgeman, William	<i>Springfield.</i>
Bronson, J. R.	<i>Attleboro'.</i>
Brown, Buckminster	<i>Boston.</i>
Brown, Jonathan	<i>Tewksbury.</i>
Brown, Orlando	<i>Wrentham.</i>
†Buck, Ephraim	<i>Boston.</i>
Buckingham, Charles E.	<i>do.</i>
Burnap, S. B.	<i>Holliston.</i>
Burnap, S. G.	<i>do.</i>
Burnham, Z. P.	<i>Lowell.</i>
Cabot, jr., Samuel	<i>Boston.</i>
Carpenter, E. W.	<i>Chatham.</i>
Carpenter, H.	<i>Upton.</i>
Carpenter, Nelson	<i>Warren.</i>
Chaffee, C. C.	<i>Springfield.</i>

Chamberlain, C. N.	<i>North Hampton.</i>
Channing, Walter	<i>Boston.</i>
Chapin, Alonzo	<i>Winchester.</i>
Chapman, T. L.	<i>Long Meadow.</i>
Childs, H. H.	<i>Pittsfield.</i>
Childs, Timothy	<i>do.</i>
Choate, George	<i>Salem.</i>
Clark, Edward H.	<i>Boston.</i>
Clark, Henry G.	<i>do.</i>
Clark, Rowse R.	<i>Whitinsville.</i>
Clarke, Alpheus B.	<i>Holyoke.</i>
Clarke, Henry	<i>Worcester.</i>
Clarke, Moses	<i>East Cambridge.</i>
Coale, William E.	<i>Boston.</i>
Cogswell, George	<i>Bradford.</i>
Coit, D. T.	<i>Boston.</i>
Collins, Clarkson T.	<i>Great Barrington, Berkshire Co.</i>
Comstock, W. W.	<i>Middleboro'.</i>
Cornell, W. M.	<i>Boston.</i>
Cornish, Aaron	<i>Falmouth.</i>
Cotting, B. E.	<i>Roxbury.</i>
Cowles, Henry	<i>Saxonville.</i>
Cox, jr., Benjamin	<i>Salem.</i>
Crane, Phineas M.	<i>East Boston.</i>
Cross, Enoch	<i>Newburyport.</i>
Cummings, W. H.	<i>Williamstown.</i>
Curtis, Josiah	<i>Boston.</i>
Curtis, Josiah	<i>Lowell.</i>
Cutter, Benjamin	<i>Woburn.</i>
†Cutter, Nehemiah	<i>Pepperell.</i>
Dale, William J.	<i>Boston.</i>
Dalton, Jno. C.	<i>Lowell.</i>
Davis, C. A.	<i>Chelsea.</i>
Davis, R. T.	<i>Fall River.</i>
Dearborne, A. D.	<i>Upper Falls, Newton.</i>
Deniston, E. E.	<i>North Hampton.</i>
Dickey, Hanover	<i>Lowell.</i>
Dix, John H.	<i>Boston.</i>
Dunlap, James	<i>Northampton.</i>
Eames, Ambrose N.	<i>Wrentham.</i>
Eastman, E. T.	<i>Boston.</i>

Edwards, N. B.	<i>New Chemsford.</i>
Ellis, Calvin	<i>Boston.</i>
Fabyan, George	<i>do.</i>
Farnum, jr., J.	<i>Salem.</i>
Fay, Allen C.	<i>Milford.</i>
Fay, Charles	<i>Charlton.</i>
Fearing, Elisha P.	<i>Nantucket.</i>
Ferry, Henry	<i>Dalton.</i>
Fisk, Samuel A.	<i>Northampton.</i>
Fisk, Calvin P.	<i>Fiskdale.</i>
Flint, Edward	<i>Leicester, Worcester Co.</i>
Flint, John	<i>Boston.</i>
Fogg, David S.	<i>Dedham.</i>
Forsyth, James B.	<i>Chelsea.</i>
French, Jno. O.	<i>Hanover.</i>
Gardner, Johnson	<i>Pawtucket.</i>
Garland, G. W.	<i>Lawrence.</i>
Garratt, Alfred C.	<i>Boston.</i>
Gay, George H.	<i>do.</i>
Gillman, B. F.	<i>Nantucket.</i>
Godding, Alvah	<i>Winchendon.</i>
Gordon, Charles	<i>Boston.</i>
Gordon, Timothy	<i>Plymouth.</i>
Gordon, William A.	<i>New Bedford.</i>
Gould, Augustus A.	<i>Boston.</i>
Graves, John W.	<i>Lowell.</i>
Green, John	<i>Worcester.</i>
Green, John O.	<i>Lowell.</i>
Greene, Francis C.	<i>E. Hampton.</i>
Guiteau, Coridon	<i>Lee.</i>
†Hale, Enoch	<i>Boston.</i>
Hall, Adino B.	<i>do.</i>
Harpur, John	<i>Sandwich.</i>
Harris, Jonas C.	<i>West Cambridge.</i>
Haskell, Benjamin	<i>Rockport.</i>
Hayden, Jno. C.	<i>Boston.</i>
Hayward, George	<i>do.</i>
Hayward, jr., George	<i>do.</i>
Heywood, B. F.	<i>Worcester, Worcester Co.</i>
Hitchcock, Alfred	<i>Fitchburg, Worcester Co.</i>
Hodgdon, Richard L.	<i>West Cambridge.</i>

Holmes, Christopher C.	<i>Milton, Norfolk Co.</i>
Holmes, Oliver W.	<i>Boston.</i>
Homans, John	<i>do.</i>
Homans, C. D.	<i>do.</i>
Hooker, Anson	<i>Cambridge.</i>
Hooker, Anson P.	<i>do.</i>
Hooper, Foster	<i>Fall River.</i>
Hooper, R. W.	<i>Boston.</i>
Hoovey, Daniel	<i>Greenfield, Franklin Co.</i>
Hosmer, Hiram	<i>Watertown.</i>
Howe, Charles	<i>Raynham.</i>
†Howe, Zadoc	<i>Billerica.</i>
Howe, Appleton	<i>South Weymouth, Norfolk Co.</i>
Hoyt, Enos	<i>Framingham.</i>
Huntingdon, Elisha	<i>Lowell.</i>
Hurd, Samuel H.	<i>Charlestown.</i>
Huse, Stephen	<i>Methuen.</i>
Inches, H. B.	<i>Boston.</i>
Ingalls, William	<i>Winchester.</i>
Jackson, Charles J.	<i>Boston.</i>
Jackson, James	<i>do.</i>
Jackson, J. B. S.	<i>do.</i>
Jackson, Woburn	<i>do.</i>
Jarvis, Edward	<i>Dorchester.</i>
Jeffries, B. Joy	<i>Boston.</i>
Jeffries, John	<i>do.</i>
Jennings, Selden	<i>Richmond.</i>
Jewett, Jeremiah P.	<i>Lowell.</i>
Keep, N. C.	<i>Boston.</i>
Kendall, Pierson T.	<i>Clinton.</i>
Kendall, P. S.	<i>Worcester.</i>
Kimball, Gilman	<i>Lowell.</i>
Kittridge, Theodore	<i>Waltham.</i>
Lambert, Alfred	<i>Springfield.</i>
Lamb, W. D.	<i>Lawrence.</i>
Leland, F.	<i>Milford.</i>
Leonard, Jonathan	<i>Sandwich.</i>
Leonard, M. B.	<i>East Boston.</i>
Lewis, Winslow	<i>Boston.</i>
Levell, Ephraim W.	<i>West Boylston.</i>
Lyman, George H.	<i>Boston.</i>

Lynde, James P.	
Mack, William	<i>Salem.</i>
Mackie, Andrew	<i>New Bedford.</i>
Mansfield, J. D.	<i>South Reading.</i>
Marshall, Jonas A.	<i>Fitchburg.</i>
Martin, Oramel	<i>Worcester.</i>
Metcalf, John George	<i>Mendon.</i>
Miller, E. D.	<i>Dorchester.</i>
Minot, Francis	<i>Boston.</i>
Monroe, A. Le B.	<i>Medway.</i>
Moore, E. B.	<i>Boston.</i>
Moriarty, Jno. M.	<i>do.</i>
Morland, William W.	<i>do.</i>
Morrill, Samuel	<i>do.</i>
Morse, James R.	<i>Cambridge.</i>
†Mowe, Daniel	<i>Lowell.</i>
Norcross, Josiah	<i>South Reading.</i>
Noyes, Josiah	<i>Needham P. O.</i>
Nye, James M.	<i>Lynn.</i>
Odin, jr., John	<i>Boston.</i>
Oliver, Fitch E.	<i>do.</i>
Orcott, Almon M.	<i>Hardwick.</i>
Osgood, Jonathan W. D.	<i>Greenfield.</i>
Otis, G. A.	<i>Springfield.</i>
Otis, jr., George A.	<i>do.</i>
Page, Calvin G.	<i>Boston.</i>
Page, W. H.	<i>do.</i>
Palmer, E. D. G.	<i>do.</i>
Parker, Hiram	<i>Lowell.</i>
†Parkman, George	<i>Boston.</i>
†Parkman, Samuel	<i>do.</i>
Parks, jr., Luther	<i>do.</i>
Patch, F. F.	<i>do.</i>
Peck, Wm. D.	<i>Sterling.</i>
Perkins, Henry C.	<i>Newburyport.</i>
Perkins, John P.	<i>Great Barrington.</i>
†Perry, M. S.	<i>Boston.</i>
Phelps, Thaddeus	<i>Attleborough.</i>
Pierce, John	<i>Edgartown.</i>
†Pierson, A. L.	<i>Salem.</i>
Pierson, E. B.	<i>do.</i>

Pillsbury, Harlin	<i>Lowell.</i>
†Pillsbury, John D.	<i>do.</i>
Pond, Benjamin	<i>Westborough.</i>
Poole, Alexander	<i>Dennis.</i>
Porter, jr., Joshua N.	<i>N. Brookfield.</i>
Pratt, Calvin B.	<i>Bridgewater.</i>
Pratt, Jefferson	<i>Hopkinton.</i>
Reynolds, Edward	<i>Boston.</i>
Reynolds, Joseph	<i>Gloucester.</i>
Richardson, Horace	<i>Boston.</i>
Robbins, James W.	<i>Uxbridge.</i>
Rook, O. S.	<i>Pittsfield.</i>
Root, Martin	<i>Byfield.</i>
Russell, Ira	<i>Nantick.</i>
Russell, Le Baron	<i>Boston.</i>
Salisbury, Stephen	<i>Brookline.</i>
Salter, Richard H.	<i>Boston.</i>
Sargent, J.	<i>Worcester.</i>
Sargent, H.	<i>do.</i>
Sargent, Seneca	<i>Lawrence.</i>
Savory, Charles A.	<i>Lowell.</i>
Seymore, Levi Dwight	<i>Greenfield.</i>
Shattuck, jr., George C.	<i>Boston.</i>
Shattuck, W.	<i>do.</i>
Shurtleff, Augustine	<i>Brookline.</i>
Shurtleff, Nathaniel B.	<i>Boston.</i>
Smith, David P.	<i>Springfield.</i>
†Smith, James M.	<i>do.</i>
Smith, Jerome C.	<i>Somerville.</i>
Smith, J. V. C.	<i>Boston.</i>
Snow, A. B.	<i>do.</i>
Southwick, M. D.	<i>Dunstable.</i>
Spaulding, Miles	<i>Groton.</i>
Spooner, John P.	<i>Dorchester.</i>
Spooner, Paul	<i>New Bedford.</i>
Sprague, Seth L.	<i>Boston.</i>
Stedman, Charles H.	<i>do.</i>
Stetson, James A.	<i>Quincy.</i>
Stevens, William F.	<i>Stoneham.</i>
Stickney, Chas. D.	<i>New Bedford.</i>

Stimpson, Jeremy	<i>Dedham.</i>
Stone, Eben.	<i>Walpole.</i>
Stone, James W.	<i>Boston.</i>
Stone, Joseph	<i>Hardwick.</i>
Stone, Henry O.	<i>Boston.</i>
Storer, D. Humphreys	<i>Boston.</i>
Storer, H. R.	<i>do.</i>
Strattan, Elijah	<i>Northfield.</i>
Taylor, A. H.	<i>Shelburne Falls.</i>
Taylor, John B.	<i>Cambridge.</i>
Taylor, jr., Nathaniel W.	<i>Springfield.</i>
Thaxter, Duncan M. B.	<i>Boston.</i>
Thomas, A.	<i>Cambridge.</i>
Thomas, A. T.	<i>Boston.</i>
Thompson, James	<i>Northampton.</i>
Thomson, Horatio	<i>Belchertown.</i>
Thorndike, William	<i>Beverly.</i>
Townsend, S. D.	<i>Boston.</i>
Upham, J. B.	<i>do.</i>
Wakefield, H. P.	<i>Reading.</i>
Wales, Bradford L.	<i>Randolph.</i>
Ware, Charles E.	<i>Boston.</i>
Ware, John	<i>do.</i>
Ware, Jonathan	<i>Milton.</i>
Warren, George A.	<i>Hopkinton.</i>
† Warren, John C.	<i>Boston.</i>
Warren, J. Mason	<i>do.</i>
Warren, jr., J. W.	<i>do.</i>
† Wellington, T.	<i>West Cambridge.</i>
Wheeler, W. G.	<i>Chelsea.</i>
Wheatland, R. H.	<i>Salem.</i>
White, Vassal	<i>Curtisville P. O., Stockbridge.</i>
Whiting, Aug.	<i>Charlestown.</i>
Whiting, Joseph B.	<i>Lee.</i>
Whitney, Simon	<i>Framingham.</i>
† Whitridge, W. C.	<i>New Bedford.</i>
Wilde, James	<i>Duxbury.</i>
† Wilder, Charles W.	<i>Leominster.</i>
Wiley, Adams	<i>Roxbury.</i>
Willard, H.	<i>Boston.</i>
† Williams, Stephen W.	<i>Deerfield.</i>

Willis, Isaac P.	<i>Royalston.</i>
Woorland, William W.	<i>Boston.</i>
Workman, William	<i>Worcester, Worcester Co.</i>
York, Jasper H.	<i>Boston.</i>

RHODE ISLAND.

Allen, Hiram	<i>Woonsocket.</i>
Arnold, S. Augustus	<i>Providence.</i>
Ballob, A. W.	<i>do.</i>
Baker, George P.	<i>do.</i>
Batchelder, D. Homer	<i>Cranston.</i>
Brown, W. O.	<i>Providence.</i>
Brownell, Richmond	<i>do.</i>
Capron, George	<i>do.</i>
Clapp, Sylvanus	<i>Pawtucket.</i>
Cleveland, H.	<i>New Providence.</i>
†Clifford, Lewis W.	<i>Providence.</i>
Collins, George L.	<i>do.</i>
Dunn, Theophilus C.	<i>Newport.</i>
Eldridge, J. H.	<i>East Greenwich.</i>
Ellis, J. James	<i>Bristol.</i>
Ely, James W. C.	<i>Providence.</i>
Fisher, C. H.	<i>North Scituate.</i>
Fowler, Ezekiel	<i>Woonsocket Falls.</i>
Kenyon, Job	<i>Coventry.</i>
King, David	<i>Newport.</i>
Le Prohon, E. P.	<i>Providence.</i>
Mauran, Joseph	<i>do.</i>
Miller, Lewis L.	<i>do.</i>
Newell, Timothy	<i>do.</i>
Newhall, Thomas K.	<i>Scituate.</i>
Parsons, Charles W.	<i>Providence.</i>
Parsons, Usher	<i>do.</i>
Peckham, F. H.	<i>do.</i>
Pierce, G. A.	<i>do.</i>
Pratt, H. P.	<i>do.</i>
Rivers, H. W.	<i>do.</i>
Snow, Ed. M.	<i>do.</i>
†Warren, J. E.	<i>Cumberland.</i>

CONNECTICUT.

Baker, Rufus	<i>Middletown.</i>
Barnes, Julius S.	<i>Southington.</i>
Barrows, Ashbel W.	<i>Hartford.</i>
†Beach, Samuel	<i>Bridgeport.</i>
Beardsley, Lucius N.	<i>Milford.</i>
Beardsley, Sheldon	<i>North Branford.</i>
Beckwith, Josiah G.	<i>Litchfield.</i>
Bennett, Ezra P.	<i>Danbury.</i>
Bennett, Hanford N.	<i>Bridgeport.</i>
Beresford, S. B.	<i>Hartford.</i>
Bishop, E. H.	<i>New Haven.</i>
Blackman, G.	<i>Westport.</i>
Blakeman, Rufus	<i>Fairfield.</i>
Bostwick, D. E.	<i>Litchfield.</i>
†Bowen, Samuel	<i>Thompson.</i>
Bradford, Milton.	<i>West Woodstock.</i>
Brigham, Norman	<i>North Mansfield.</i>
Brinley, E. H.	<i>Hartford.</i>
Bronson, Henry	<i>New Haven.</i>
Brown, Jas.	<i>Waterbury.</i>
Brownell, Clarence, M.	<i>East Hartford.</i>
Brownell, William R.	<i>Hartford.</i>
Budington, George E.	<i>New Haven.</i>
Buell, Henry W.	<i>Litchfield.</i>
Burke, George W.	<i>Middletown.</i>
Burr, David S.	<i>Westport.</i>
Burr, Horace	
Butler, John S.	<i>Hartford.</i>
Campbell, Harvey	<i>Voluntown.</i>
Canfield, Joel	<i>Guilford.</i>
†Carrington, Edwin W.	<i>Farmington.</i>
Castle, Andrew	<i>Woodbridge.</i>
Catlin, Benjamin H.	<i>West Meriden.</i>
Catlin, Samuel	<i>Watertown.</i>
Childs, Seth	<i>East Hartford.</i>
Clark, William N.	<i>Stafford.</i>
Clary, George	<i>Hartford.</i>
Cogswell, William H.	<i>Plainfield.</i>
Comings, B. N.	<i>New Britain.</i>

Comstock, Jos.	<i>Lebanon.</i>
Crary, David	<i>Hartford.</i>
Daggett, David L.	<i>New Haven.</i>
Deming, Ralph	<i>Sharon.</i>
Dickinson, Francis L.	<i>Willington.</i>
†Downes, John K.	<i>New Haven.</i>
Downing, Eleazer B.	<i>Preston.</i>
Fowler, Remus M.	<i>Washington.</i>
Francis, D. P.	<i>New London.</i>
Gilbert, G. C. H.	<i>Portland.</i>
Gillette, H. C.	<i>South Windsor.</i>
Goodrich, Alfred R.	<i>Vernon.</i>
Gourdin, Samuel	<i>New Haven.</i>
Griggs, O. B.	<i>Mansfield.</i>
Haile, Ashbel B.	<i>Norwich.</i>
†Hall, Eli	<i>East Hartford.</i>
Hammond, Justin	<i>Daysville.</i>
†Harrison, David	<i>Middletown.</i>
Hastings, Panet M.	<i>Hartford.</i>
†Hatch, Johnson C.	<i>Kent.</i>
Hawley, George B.	<i>Hartford.</i>
Hawley, Roswell	<i>Bristol.</i>
†Hooker, Charles	<i>New Haven.</i>
Hooker, Worthington	<i>do.</i>
Hubbard, Denison H.	<i>Clinton.</i>
Hubbard, Robert	<i>Bridgeport.</i>
Hubbard, Stephen G.	<i>New Haven.</i>
Hunt, Ebenezer	<i>Hartford.</i>
Hutchins, Samuel	<i>West Killingly.</i>
Hutchinson, Ira	<i>Cromwell.</i>
Huxley, A. M.	<i>Goshen.</i>
†Ives, Eli	<i>New Haven.</i>
Ives, Levi	<i>do.</i>
Ives, Nathan B.	<i>do.</i>
Jarvis, George O.	<i>Portland.</i>
Jewett, Pliny A.	<i>New Haven.</i>
Knight, Jonathan	<i>do.</i>
Leavenworth, Melinus C.	<i>Waterbury.</i>
Lewis, J. B.	<i>Vernon.</i>
Dindsley, Charles A.	<i>New Haven.</i>
†Lyman, Norman	<i>Warren.</i>

Manwaring, R. A.	<i>New London.</i>
Matthews, H. W. E.	<i>New Haven.</i>
Matthewson, Rufus W.	<i>Durham.</i>
†Middlebrook, Elijah	<i>Trumbull.</i>
Miller, Gaylord B.	<i>Harwinton.</i>
Moody, G. A.	<i>Plainville.</i>
Nicoll, John	<i>New Haven.</i>
North, B. B.	<i>Cornwall.</i>
Noyes, Samuel S.	<i>New Canaan.</i>
Nye, Elisha B.	<i>Middletown.</i>
Paddock, Lewis S.	<i>Norwich.</i>
Park, Edwin A.	<i>New Haven.</i>
†Pierson, William S.	<i>Windsor.</i>
†Pike, Nathan S.	<i>Sterling Hill.</i>
Platt, Gideon L.	<i>Waterbury.</i>
Porter, Isaac G.	<i>New London.</i>
Prendereson, Samuel	<i>New Haven.</i>
Richardson, Wm. H.	<i>Mansfield.</i>
Rockwell, P. G.	<i>Waterbury.</i>
†Rogers, Benjamin	<i>Hartford.</i>
Russell, Gerdon W.	<i>do.</i>
Salisbury, Samuel T.	<i>Plymouth.</i>
Sanford, Leonard J.	<i>New Haven.</i>
Seymour, George	<i>Litchfield.</i>
Silliman, jr., Benjamin	<i>New Haven.</i>
Shove, Harmon W.	<i>Woodbury.</i>
Skinner, Alden	<i>Rockville.</i>
St. John, Gamaliel H.	<i>Merwinsville.</i>
Stillman, Roswell F.	<i>North Haven.</i>
†Sumner, George	<i>Hartford.</i>
Sumner, George O.	<i>New Haven.</i>
Talcott, Alvan	<i>Guilford.</i>
Totten, Thomas H.	<i>New Haven.</i>
Turner, Sylvester W.	<i>Chester.</i>
Warner, Abner S.	<i>Hartford.</i>
†Warner, Richard	<i>Cromwell.</i>
†Webb, Reynold	<i>Madison.</i>
†Welch, Archibald	<i>Hartford.</i>
Welch, Benjamin	<i>Lakeville.</i>
Welch, James	<i>Winchester.</i>
Welch, James	<i>Winstead.</i>

Welch, William W.	<i>Norfolk.</i>
Welsh, John H.	<i>do.</i>
White, Moses C.	<i>New Haven.</i>
White, Roderick A.	<i>Simsbury.</i>
Wilcox, J. D.	<i>West Granby.</i>
Wilcox, Lucian S.	<i>Hartford.</i>
Williams, A. L.	<i>Brookfield.</i>
Williams, Lewis	<i>Pomfret.</i>
† Wilson, Myron W.	<i>Hartford.</i>
† Witter, William	<i>Willimantic.</i>
Wood, William	<i>East Windsor Hill.</i>
Woodruff, William	<i>Plymouth.</i>
Woodward, Ashbel	<i>Franklin.</i>
Woodward, Charles	<i>Middletown.</i>
Wright, Albert A.	<i>Canaan.</i>

NEW YORK.

Acosta, E.	<i>New York.</i>
Adams, Hiram	<i>Fabius.</i>
Adams, John G.	<i>New York.</i>
Agnew, Cornelius R.	<i>do.</i>
Allen, R. L.	<i>Saratoga Springs.</i>
Allen, Lucius A.	<i>Owego, Tioga Co.</i>
Allen, Lucius H.	<i>Owego.</i>
Allin, Charles M.	<i>Flushing, L. I.</i>
Anderson, James	<i>New York.</i>
Anderson, W. C.	<i>Stapleton.</i>
Armsby, James H.	<i>Albany.</i>
Armstrong, E. W.	<i>Rochester.</i>
Arnold, E. S. F.	
Atwater, D. F.	<i>Brooklyn.</i>
Austin, James M.	<i>Waterford.</i>
Ayres, Daniel	<i>Brooklyn.</i>
Ayres, Daniel	<i>Amsterdam.</i>
Babcock, Charles	<i>New Hartford, Oneida Co.</i>
Babcock, M. N.	<i>Saratoga Springs.</i>
Bache, B. F.	<i>Brooklyn.</i>
Bacon, C. G.	<i>Fullton.</i>
Baker, jr., A.	<i>Norwich.</i>
Ball, John	<i>Brooklyn.</i>
Barker, B. Fordyce	<i>New York.</i>

Barnett, C. N.	
Barrett, S.	<i>Le Roy.</i>
Barrows, Charles	<i>C'inton.</i>
Bartlett, Homer L.	<i>Flatbush.</i>
Batchelder, J. P.	<i>New York.</i>
Bauer, Louis	<i>Brooklyn.</i>
Bay, William	<i>Albany.</i>
Baxter, Hiram	<i>Stillwater, Saratoga Co.</i>
Beadle, E. L.	<i>New York.</i>
Beardsley, Levi	<i>Oneida.</i>
Beardsley, W. H.	<i>Coventry.</i>
Beattie, Joseph	<i>Geneva.</i>
†Beck, T. Romeyn	<i>Albany.</i>
Beebe, Seneca	<i>McDonough, Chenango Co.</i>
Beecher, H. H.	<i>North Norwich.</i>
Bell, A. Nelson	<i>Brooklyn.</i>
Benton, John B.	<i>Spencer.</i>
Bissell, D. P.	<i>Utica.</i>
Blair, Abba	<i>Rome.</i>
Blakeman, William N.	<i>New York.</i>
Blatchford, Thomas W.	<i>Troy.</i>
Bly, Douglass	<i>Rochester.</i>
Bolton, Jackson	<i>New York.</i>
Bontecou, R. B.	<i>Troy.</i>
Borrowe, J. H.	<i>New York.</i>
Bradford, George W.	<i>Homer, Cortland Co.</i>
Brady, John A.	<i>Brooklyn.</i>
Briggs, W. H.	<i>Rochester.</i>
Brinsmade, Thomas C.	<i>Troy.</i>
Bronson, John O.	<i>New York.</i>
Brooks, Daniel	<i>Brooklyn.</i>
Brooks, P. B.	<i>Binghampton, Broome Co.</i>
Brown, H. W.	<i>New York.</i>
Buck, Gurdon	<i>do.</i>
Budd, A. E.	<i>Medford, Burlington Co.</i>
Budd, C. A.	<i>New York.</i>
Budlong, Caleb	<i>Frankford, Herkimer Co.</i>
Buel, William P.	<i>New York.</i>
Bulkley, Henry D.	<i>do.</i>
Burge, I. H. II.	<i>Brooklyn.</i>
†Burton, C. V. W.	<i>Lansingburg.</i>

Burwell, Bryant	<i>Buffalo.</i>
Burwell, George N.	<i>do.</i>
Calkins, Alonzo	<i>New York.</i>
†Cammann, G. P.	<i>do.</i>
†Carr, Edson	<i>Canandaigua, Ontario Co.</i>
Cary, Walter	<i>Buffalo.</i>
Carter, Galen	<i>New York.</i>
Case, Jonathan H.	<i>Albany.</i>
Casey, James E.	<i>Mohawk.</i>
Casey, W. B.	<i>New York.</i>
†Cash, M. H.	<i>Ridgebury, Orange Co.</i>
Chamberlayne, J. K.	<i>Cazenovia.</i>
Chapman, E. M.	<i>Brooklyn.</i>
Cheeney, E. W.	
†Cheeseman, Jno. C.	<i>New York.</i>
Chubbuck, H. S.	<i>Elmira, Chenango Co.</i>
Church, W. Henry	<i>New York.</i>
Clark, Alonzo	<i>do.</i>
Clements, James W. G.	<i>do.</i>
Cleveland, J. M.	<i>Utica.</i>
Clymer, Meredith	<i>New York.</i>
Cobb, J. V.	<i>Rome.</i>
Cock, Thomas	<i>New York.</i>
Cock, Thomas F.	<i>do.</i>
Cockcroft, James	<i>do.</i>
Coe, A. B.	<i>Oswego.</i>
Colt, John	<i>Batavia.</i>
Conant, D. S.	<i>New York.</i>
Cone, Robert C.	<i>Lowville.</i>
Congar, Horace M.	<i>Buffalo.</i>
Cook, Simon A.	<i>Buskirk's Bridge.</i>
Corliss, Hiram	<i>Greenwich, Washington Co.</i>
Corson, J. W.	<i>New York.</i>
Corson, J.	<i>do.</i>
Cotes, John	<i>Batavia.</i>
Cotes, L. B.	<i>do.</i>
Coventry, C. B.	<i>Utica.</i>
Crandell, R. O.	<i>Owego.</i>
Crane, James	<i>Brooklyn.</i>
Crispell, Abm.	<i>Rondout.</i>
Curry, James Hart	<i>Yorktown.</i>

Dalton, J. C.	<i>New York.</i>
Dana, Samuel W.	<i>do.</i>
Daniels, E.	<i>Union, Broome Co.</i>
Davis, E. H.	<i>New York.</i>
Davis, Henry G.	
Dean, H. W.	<i>Rochester.</i>
Delafield, Edward	<i>New York.</i>
Delano, B. L.	
Deming, J. P. H.	<i>Palmyra.</i>
Dering, Nicoll H.	<i>Utica.</i>
Detmold, W.	<i>New York.</i>
Dodge, D. A.	<i>Brooklyn.</i>
Donaghe, William R.	<i>New York.</i>
Donoghue, E. O.	<i>Bergen, Genesee Co.</i>
Doolittle, A. F.	<i>Herkimer.</i>
Douglas, Isaac H.	<i>Utica.</i>
Douglas, J. Hancock	<i>New York.</i>
Downs, Henry S.	<i>do.</i>
Draper, John W.	<i>do.</i>
Dubois, Abram	<i>do.</i>
†Dwight, W. C.	<i>Moscow, Livingston Co.</i>
†Dwight, William W.	<i>New York.</i>
Earle, Pliny	<i>do.</i>
Eastman, M. H.	<i>Owego.</i>
Elliot, Ellsworth	<i>New York.</i>
Elliot, jr., Geo. T.	<i>do.</i>
Ely, W. W.	<i>Rochester.</i>
Emmet, Thomas Addis	<i>New York.</i>
Enos, D. C.	<i>Brooklyn.</i>
Ferguson, Jno. T.	<i>New York.</i>
Fisher, G. J.	<i>Sing Sing.</i>
Finnell, T. C.	<i>New York.</i>
Flint, Austin	<i>do.</i>
Flint, jr., Austin	<i>do.</i>
Folsom, Levi	<i>do.</i>
Ford, Corydon L.	<i>Lockport.</i>
Foster, Joel	<i>New York.</i>
Foster, S. Conant	<i>do.</i>
†Francis, John W.	<i>do.</i>
Freeman, N. K.	
French, S. H.	<i>Lisle, Broome Co.</i>

Furman, G.	
Gardner, Augustus K.	<i>New York.</i>
Garrison, J. P.	<i>do.</i>
Gay, C. C. F.	
Gaylord, L. Merriman	<i>Sodus.</i>
Gilman, Chandler R.	<i>New York.</i>
Glück, Isidore	<i>do.</i>
Gomez, Horatio	<i>New York.</i>
Goodsell, Thomas	<i>Utica.</i>
Gould, William	<i>Buffalo.</i>
Goodyear, Miles	<i>Cortland.</i>
Govan, William	<i>North Haverstraw.</i>
Gray, Henry C.	<i>North White Creek.</i>
Green, David	<i>New York.</i>
Green, Horace	<i>do.</i>
Green, J. W.	<i>do.</i>
Greene, Caleb	<i>Homer, Cortland Co.</i>
†Greene, Isaac	<i>New York.</i>
Griscom, John H.	<i>do.</i>
Guthrie, C. B.	<i>do.</i>
Hadley, George	<i>Buffalo.</i>
Haight, C. W.	<i>Pleasantville.</i>
Hall, Edward	<i>State Lunatic Asylum, Auburn.</i>
Halstad, T. M.	<i>New York.</i>
Hamilton, Frank H.	<i>Brooklyn.</i>
Harrington, S. H.	<i>Chenango Forks.</i>
Harris, Elisha	<i>New York.</i>
Harvey, Charles W.	<i>Buffalo.</i>
Hard, P. H.	<i>Oswego.</i>
Hart, John	<i>New York.</i>
Hart, Samuel	<i>Brooklyn.</i>
†Hawley, Joel E.	<i>Ithaca.</i>
Henderson, F. B.	<i>Whitesboro'.</i>
Hendrick, H. C.	<i>McGrawville.</i>
Henry, James H.	<i>Brooklyn.</i>
Henschell, C.	<i>New York.</i>
Heywood, C. F.	<i>do.</i>
Hinton, John H.	<i>do.</i>
Hovey, B. L.	<i>Dansville.</i>
Holcomb, W. F.	<i>New York.</i>
Homberger, Julius	

Hubbard, Samuel T.	<i>New York.</i>
Hubbard, Silas	<i>Buffalo.</i>
Hun, Thomas	<i>Albany.</i>
Hunt, Sandford B.	<i>Buffalo.</i>
Husted, N. C.	<i>New York.</i>
Hutchison, J. C.	<i>Brooklyn.</i>
Hyde, Frederick	<i>Cortlandville.</i>
Hyde, Lucius	<i>Brooklyn.</i>
Ingraham, T. M.	<i>Flatbush.</i>
Jackson, Thomas	<i>Binghampton.</i>
Jackson, William H.	<i>New York.</i>
Jacobi, Abraham	<i>do.</i>
Jacobs, Ferris	<i>Delhi, Delaware Co.</i>
Jenkins, J. Foster	<i>Yonkers.</i>
Janes, Edward H.	<i>New York.</i>
Jerome, James H.	<i>Trumansburg.</i>
Jewett, C.	<i>Buffalo.</i>
Jewett, Harvey	<i>Canandaigua.</i>
Jewitt, C. Enos	<i>Brooklyn.</i>
† Jones, Daniel T.	<i>Baldwinsville.</i>
Jones, E. L.	<i>New York.</i>
Jones, Joseph B.	<i>Brooklyn.</i>
Keene, Stephen S.	<i>New York.</i>
Keese, Hobart	<i>do.</i>
Kiernan, James L.	<i>do.</i>
† Kissam, R. S.	<i>do.</i>
Krackowitzer, Earnest	<i>do.</i>
Laudon, D. S.	<i>Brooklyn.</i>
Lea, Isaac	<i>Stapleton.</i>
Lee, Charles A.	<i>New York.</i>
Linsly, Jared	<i>do.</i>
Little, G. S.	<i>Kirkwood.</i>
Lockwood, T. T.	<i>Buffalo.</i>
MacFarlan, Ebenezer	<i>Williamsburg, Long Island.</i>
† Manly, James R.	<i>New York.</i>
Manly, James	<i>Brooklyn.</i>
March, Alden	<i>Albany.</i>
March, M. M.	<i>Manlius.</i>
Markoe, T. M.	<i>New York.</i>
Mason, Theo. L.	<i>Brooklyn.</i>
McCall, John	<i>Utica.</i>

McEwen, John B.	<i>New York.</i>
†McIntyre, A.	<i>Palmyra.</i>
McKay, Lawrence	<i>Rochester.</i>
McMillan, Charles	<i>Fordham.</i>
McNaughton, James	<i>Albany.</i>
†McNevin, Wm. H.	<i>New York.</i>
McNulty, John	<i>do.</i>
McPhail, L. C.	<i>Brooklyn.</i>
Mercer, Alfred	<i>Syracuse.</i>
Metcalfe, John T.	<i>New York.</i>
†Miller, John	<i>do.</i>
†Miner, William	<i>do.</i>
Minor, J. M.	<i>Brooklyn.</i>
Mitchell, L. C.	<i>do.</i>
†Mitchell, Henry	<i>Norwich.</i>
Mixer, S. F.	<i>Buffalo.</i>
Moe, Erastus C.	<i>Groton.</i>
Monell, J. A.	<i>New York.</i>
Morrell, Joseph S.	<i>Glen Cove, L. I.</i>
Morris, Philip V. N.	<i>Buskirk's Bridge.</i>
Morris, R. L.	<i>New York.</i>
Mott, Valentine	<i>do.</i>
Mott, Walter	<i>Schuylerville, Saratoga Co.</i>
Moulton, Peter	<i>New Rochelle, Westchester Co.</i>
Neuhaus, Charles	<i>Brooklyn.</i>
Newman, James M.	<i>Buffalo.</i>
Nichell, H.	
Nivison, Nelson	<i>Hector.</i>
Ogden, Benjamin	<i>New York.</i>
Orton, J. G.	<i>Binghampton.</i>
Otterson, Andrew	<i>Brooklyn.</i>
Parker, Willard	<i>New York.</i>
Parker, Edward H.	<i>Poughkeepsie.</i>
Parkhurst, W. H. H.	<i>Frankfort.</i>
Parmley, Eleazer	<i>New York.</i>
†Pattison, Granville S.	<i>do.</i>
Peaslee, E. R.	<i>do.</i>
Peters, George A.	<i>do.</i>
Phelps, E. B.	<i>Owego.</i>
Phelps, James L.	<i>New York.</i>
Philips, S. B.	<i>do.</i>

†Pierce, J. B.	<i>Lyons.</i>
Pomeroy, Charles G.	<i>Newark, Wayne Co.</i>
Pond, James O.	<i>New York.</i>
Pope, H. H.	<i>Rome.</i>
Porter, Henry N.	<i>Lee Centre.</i>
Porter, Mortimer G.	<i>New York.</i>
Post, Alfred C.	<i>do.</i>
Potter, U.	<i>Minden, Montgomery Co.</i>
Punnett, John	<i>New York.</i>
Purdy, J.	<i>Elmira, Chemung Co.</i>
Purdy, Samuel A.	<i>New York.</i>
Purple, S. S.	<i>do.</i>
Raphael, Benjamin J.	<i>do.</i>
Raymond, Charles H.	<i>do.</i>
†Reese, D. Meredith	<i>do.</i>
Reid, Jno.	<i>Rochester.</i>
Reid, Wm. W.	<i>do.</i>
Reynolds, Tabor B.	<i>Wilton, Saratoga Co.</i>
Reynolds, J. H.	<i>do.</i>
Rochester, Thomas F.	<i>Buffalo.</i>
Rockwell, Wm.	<i>New York.</i>
Rogers, D. L.	<i>New Rochelle.</i>
†Rogers, J. Kearny	<i>New York.</i>
Russ, J. D.	<i>do.</i>
Sands, D. Jerome	<i>Rye.</i>
Saunders, A. L.	<i>Brookfield, Madison Co.</i>
Sayre, Lewis A.	<i>New York.</i>
Schilling, E.	<i>do.</i>
Selden, J. C.	<i>do.</i>
Shanks, John	<i>do.</i>
Shelton, John D.	<i>Jamaica.</i>
Shipman, Azariah B.	<i>Syracuse.</i>
Shove, Seth	<i>Katonah.</i>
Shrady, George F.	<i>New York.</i>
Shunway, Samuel	<i>Essex.</i>
Sims, J. M.	<i>New York.</i>
†Skilton, Avery J.	<i>Troy.</i>
Smith, Albert	<i>New Rochelle.</i>
Smith, Charles D.	<i>New York.</i>
Smith, G. M.	<i>do.</i>
Smith, Horatio S.	<i>Brooklyn.</i>

Smith, Joseph M.	<i>New York.</i>
Smith, Joseph T.	<i>Canandaigua.</i>
Smith, Stephen	<i>New York.</i>
Smith, Whiting	<i>Whitesboro'.</i>
Snow, Simeon	<i>Root, Montgomery Co.</i>
Snyder, Morgan	<i>Fort Plain.</i>
Sprague, J. S.	<i>Exeter, Otsego Co.</i>
Sprague, L. S.	<i>Williamson.</i>
Squibb, Edward R.	<i>Brooklyn.</i>
†Sterns, John	<i>New York.</i>
Stephenson, M. P.	<i>do.</i>
Stephenson, Mark	<i>do.</i>
Stevens, Alexander H.	<i>do.</i>
Stewart, F. Campbell	<i>do.</i>
Stewart, James	<i>do.</i>
Stewart, Philander	<i>Peekskill.</i>
St. John, Samuel	<i>New York.</i>
Storch, Edward	
Stout, Arthur B.	<i>New York.</i>
Stone, J. O.	<i>do.</i>
Stoube, Fred.	<i>do.</i>
Strew, W. W.	<i>Oyster Bay.</i>
Studivant, J. M.	<i>Rome.</i>
Suckley, George	<i>New York.</i>
Swaine, Chas. H.	<i>Cortlandville.</i>
†Swett, John A.	<i>New York.</i>
†Taft, Marcus L.	<i>do.</i>
Taylor, Isaac E.	<i>do.</i>
Taylor, Wm.	<i>Manlius.</i>
Tefft, Lake J.	<i>Onondaga.</i>
Tellkamp, Theo. A.	<i>New York.</i>
Thomas, Daniel G.	<i>Utica.</i>
Thompson, jr., A. G.	<i>New York.</i>
Thompson, A. H.	<i>Walden.</i>
Thompson, Alexander	<i>Aurora, Cayuga Co.</i>
Thorn, James	<i>Troy.</i>
Tobie, E.	
Townsend, Howard	<i>Albany.</i>
Townsend, James C.	<i>Glen Cove.</i>
Townsend, Morris W.	<i>Bergen.</i>
Trask, James D.	<i>Astoria.</i>

Trask, J. D.	<i>White Plains.</i>
Trenor, jr., Jno.	<i>New York.</i>
Turner, Thomas	<i>Flatbush.</i>
Tuttle, John T.	<i>New York.</i>
Underhill, Alfred	<i>do.</i>
Van Buren, Peter	<i>do.</i>
Van Buren, W. H.	<i>do.</i>
Vanderpool, S. O.	<i>Albany.</i>
Van Hovenbergh, J. O.	<i>Kingston.</i>
Van Kleek, John R.	<i>New York.</i>
Van Pelt, M. D.	<i>do.</i>
Van Rensselaer, Alexander	<i>do.</i>
Wade, T. A.	<i>Brooklyn.</i>
Warner, E. B.	<i>New York.</i>
Warren, James	<i>do.</i>
† Watson, John	<i>do.</i>
Watts, Robert	<i>do.</i>
Webb, Edwin	<i>Hempstead, L. I.</i>
Weeks, Cyrus	<i>New York.</i>
West, S.	<i>Binghampton, Broome Co.</i>
Whaley, James S.	
Wheeler, Lewis C.	<i>Troy.</i>
White, Devillo	<i>Sherburne, Chenango Co.</i>
White, James P.	<i>Buffalo.</i>
White, Oliver	<i>New York.</i>
White, S. P.	<i>do.</i>
Whittelsey, Henry N.	<i>do.</i>
Wilbur, H. B.	<i>Syracuse.</i>
Wilcox, Charles H.	<i>Buffalo.</i>
Willard, Augustus	<i>Green, Chenango Co.</i>
Willard, Sylvester D.	<i>Albany.</i>
Williams, William H.	<i>Brooklyn.</i>
Winton, Nelson	<i>Havana.</i>
† Wing, Joel A.	<i>Albany.</i>
Wood, Isaac	<i>New York.</i>
Wood, James R.	<i>do.</i>
Woodhull, H. W. B.	<i>do.</i>
Woodward, G.	<i>do.</i>
Worster, Joseph	<i>do.</i>
Wotkyns, Alfred	<i>Troy.</i>

Wyckoff, C. C.

Zabriskie, J. L.

Flatbush.

NEW JERSEY.

Bateman, Eli E.

Fairton.

Bateman, Ephraim

Cedarville.

Bateman, B. Rush

do.

Blane, J.

Perryville.

Boucher, J. H.

Newark.

Brakeley, P. F.

Belvidere, Warren Co.

Butcher, Charles

Maurice Town, Cumberland Co.

Canfield, J. W.

Morristown.

Chetwood, G. R.

Elizabethtown.

Clark, C. F.

Woodbury.

Clark, H. C.

do.

Clarke, J. Henry

Newark.

†Cole, N. W.

Burlington.

Coles, A.

Newark.

Coleman, J. B.

Trenton.

Coleman, J. P.

Pemberton.

†Condict, Lewis

Morristown.

Cook, Chas.

Jersey City.

Cooper, Richard M.

Camden.

Corson, T. J.

Trenton.

Craig, J. W.

Plainfield.

Cramer, I. S.

Camden.

Cullen, Thomas F.

Middletown Point.

Dayton, A. B.

Lower Squankum.

Disbrow, S. M.

Dougherty, Alexander N.

Newark.

Elmer, William

Bridgeton.

English, J. S.

Manalapan.

Fithian, Enoch

Greenwich.

Fithian, Joseph

Woodbury.

Garrison, Charles

Swedeseboro'.

Garrison, J. F.

do.

Gibbon, Quinton

Salem..

Godell, George

Plattsburg.

Goodell, George

Burlington.

Grant, Gabriel

Newark.

Haines, Job

Burlington.

Hampton, Isaac H.	<i>Bridgeton.</i>
Hendry, Charles D.	<i>Camden Co.</i>
Hunt, T. Edgar	<i>Clarksville.</i>
Janeway, J. H.	<i>Princeton.</i>
Jobs, Eugene	<i>Springfield.</i>
Johnson, John C.	<i>Blairstown.</i>
Longstreet, H. H.	<i>Bordentown.</i>
Marsh, Elias J.	<i>Patterson.</i>
Martin, S. K.	<i>Martinville.</i>
Moore, C. V.	<i>Stillwater.</i>
Morford, A. D.	<i>Newton.</i>
Mulford, Isaac L.	<i>Camden.</i>
Munn, J. B.	<i>Chatham, Morris Co.</i>
Nichols, Whitfield	<i>Newark.</i>
Oakley, L. W.	<i>Elizabeth City.</i>
Page, R. H.	<i>Columbus.</i>
Phillips, John H.	<i>Pennington.</i>
Pennington, Samuel H.	<i>Newark.</i>
Pierson, W.	<i>Orange.</i>
Pierson, jr., Wm.	<i>do.</i>
Porter, E. M.	<i>Bridgeton.</i>
Rogers, Alexander W.	<i>Paterson.</i>
Read, Zachariah	<i>Mount Holly.</i>
Saunders, Thomas J.	<i>Woodbury.</i>
Sayre, David M.	<i>Sparta.</i>
Schenck, F. S.	<i>Camden.</i>
Schenck, J. V.	<i>do.</i>
Schively, George S.	<i>Mount Holly.</i>
Sickler, J. R.	<i>Carpenter's Land.</i>
Smith, Henry	<i>Neshanic.</i>
Smith, Lyndon A.	<i>Newark.</i>
Stratton, B. H.	<i>Mount Holly.</i>
Stuart, J. R.	<i>Newton.</i>
Taylor, Othniel H.	<i>Camden.</i>
Thomason, T. J.	<i>Freehold.</i>
Thompson, Jno.	<i>Hoboken.</i>
Whittingham, Edward T.	<i>Milburn.</i>
Woodhull, Addison W.	<i>Newark.</i>
Woodruff, A. D	<i>Haddonfield.</i>

PENNSYLVANIA.

Allen, Ezra P.	<i>East Smithfield.</i>
Allen, J. M.	<i>Philadelphia.</i>
Andrews, James P.	<i>Lancaster.</i>
Ashmead, William	<i>Philadelphia.</i>
Atkinson, W. B.	<i>do.</i>
Atlee, Washington L.	<i>do.</i>
Atlee, John L.	<i>Lancaster.</i>
Bache, Franklin	<i>Philadelphia.</i>
Bache, T. H.	<i>do.</i>
Baker, Charles L.	<i>Lancaster.</i>
Bare, A. S.	<i>do.</i>
Barrington, Samuel	<i>Philadelphia.</i>
†Baskin, George W.	<i>Mercer.</i>
Beaver, D. L.	<i>Reading.</i>
Bell, John	<i>Philadelphia.</i>
Bertolet, P. G.	<i>Olney.</i>
Betton, Thomas F.	<i>Germantown.</i>
†Bibighaus, C. H.	<i>Philadelphia.</i>
Biddle, John B.	<i>do.</i>
Bird, J. F.	<i>do.</i>
Blair, A. R.	<i>York.</i>
Blakeslee, A. C.	<i>Dimocks.</i>
†Bond, Henry	<i>Philadelphia.</i>
Breitenbach, J.	<i>Myerstown.</i>
Bridges, Robert	<i>Philadelphia.</i>
Brinton, John B.	<i>Westchester.</i>
Briton, Bernard	<i>Philadelphia.</i>
Brown, H. J.	<i>do.</i>
Bruce, S. D.	<i>Pittsburg.</i>
Bryan, Joseph R.	<i>Philadelphia.</i>
Bryan, James	<i>do.</i>
Burden, Jesse R.	<i>do.</i>
†Burrowes, Francis S.	<i>Lancaster.</i>
Butler, S. W.	<i>Philadelphia.</i>
Carpenter, Henry	<i>Lancaster.</i>
Carpenter, James S.	<i>Pottsville.</i>
Carson, Joseph	<i>Philadelphia.</i>
Carson, William	<i>do.</i>
Cassidy, P.	<i>Lancaster.</i>

†Chapman, Nathaniel	<i>Philadelphia.</i>
Clark, D. D.	<i>do.</i>
Coates, B. Horner	<i>do.</i>
Condie, D. Francis	<i>do.</i>
Confer, J. M.	<i>Fasteria.</i>
Conrey, Jno.	<i>Manayunk.</i>
Corse, J. M.	<i>Philadelphia.</i>
Corson, Hiram	<i>Plymouth Meeting, Mont. Co.</i>
Corson, W.	<i>Norristown.</i>
Cumminsky, J.	<i>Philadelphia.</i>
Cunningham, Oliver	<i>Beaver.</i>
Curtis, L.	<i>Philadelphia.</i>
Da Costa, J.	<i>do.</i>
†Darlington, William	<i>Westchester.</i>
Dickson, Samuel H.	<i>Philadelphia.</i>
Dillard, T.	<i>do.</i>
Dilworth, Samuel	<i>Pittsburg.</i>
Dorsey, J. H.	<i>Huntington.</i>
†Drayton, H. E.	<i>Philadelphia.</i>
†Duffield, Samuel	<i>Lancaster.</i>
Duncan, Robert	<i>do.</i>
Dunglison, Robley	<i>Philadelphia.</i>
Dyer, Jno.	<i>Danborough.</i>
Edge, J. P.	<i>Downingtown.</i>
Ehler, J. Augustus	<i>Lancaster.</i>
Ellmaker, Thomas	<i>do.</i>
Ely, Edward	<i>New Hope, Bucks Co.</i>
Emanuel, M.	<i>Marcus Hook.</i>
Emerson, Gouverneur	<i>Philadelphia.</i>
Emlen, J. V.	<i>do.</i>
Eshleman, J. K.	<i>Lancaster Co.</i>
Feay, John	<i>Williamsburg.</i>
Finley, W. R.	<i>Altoona.</i>
Fish, A. H.	<i>Philadelphia.</i>
Foulke, J. L.	<i>Gwynedd, Montgomery Co.</i>
Fox, George	<i>Philadelphia.</i>
Fronefield, Charles	<i>Montgomery Co.</i>
†Gallaher, W.	<i>Philadelphia.</i>
Gaston, A. K.	<i>Chester Co.</i>
Gazzam, Joseph P.	<i>Pittsburg.</i>
Gemmill, J. N.	<i>Altoona.</i>

Gerhard, Wm. W.	<i>Philadelphia.</i>
Gibson, William	<i>do.</i>
Gilbert, David	<i>do.</i>
Given, R. A.	<i>do.</i>
Gobrecht, W. H.	<i>do.</i>
Goddard, P. B.	<i>do.</i>
Gordon, Wm. H.	<i>do.</i>
†Grant, William R.	<i>do.</i>
Green, James M.	<i>do.</i>
Green, Traill	<i>Easton.</i>
Gries, William	<i>Reading.</i>
Gross, S. D.	<i>Philadelphia.</i>
Gryder, M. R.	<i>Chestnut Level, Lancaster Co.</i>
Guilford, Wm.	<i>Lebanon.</i>
Haines, William S.	<i>Philadelphia.</i>
Halberstadt, George	<i>Pottsville.</i>
Hallowell, Edward	<i>Philadelphia.</i>
Halsey, W. S.	<i>do.</i>
Handy, J. H.	<i>do.</i>
Harrison, F. C.	<i>Bloomsburg.</i>
Harry, Samuel H.	<i>Doe Run, Chester Co.</i>
Hart, Alexander C.	<i>Philadelphia.</i>
Hartshorne, Edward	<i>do.</i>
Hartshorne, Henry	<i>do.</i>
Hatfield, N. L.	<i>do.</i>
Hays, Isaac	<i>do.</i>
Heger, Anthony	<i>Pottsville.</i>
Herbst, William	<i>Reading.</i>
Hewson, Addinell	<i>Philadelphia.</i>
Hiester, Frank M.	<i>Reading.</i>
Heister, J. P.	<i>do.</i>
Hinkle, Franklin	<i>Marietta.</i>
Hodge, Hugh L.	<i>Philadelphia.</i>
Hollingsworth, S. L.	<i>do.</i>
Holmes, Daniel	
Horner, G. R. B.	<i>do.</i>
†Horner, William E.	<i>do.</i>
Horton, George F.	<i>Terrytown.</i>
†Humes, Samuel	<i>Lancaster.</i>
Hunter, C. H.	<i>Reading.</i>
Hunt, W.	<i>Philadelphia.</i>

Huston, Robert M.	<i>Philadelphia.</i>
Innes, Charles	<i>Easton.</i>
Irwin, John S.	<i>Pittsburg.</i>
Jackson, R. M. J.	<i>Cresson.</i>
Jackson, Samuel (Prof.)	<i>Philadelphia.</i>
Jackson, Samuel	<i>do.</i>
James, R. E.	<i>Stonechurch.</i>
James, Charles	<i>Easton.</i>
James, O. P.	<i>Doylestown.</i>
†Janney, Benjamin S.	<i>Philadelphia.</i>
Jewell, Wilson	<i>do.</i>
Keating, William V.	<i>do.</i>
Keith, William	<i>do.</i>
Keneagy, Samuel	<i>Strasburg, Lancaster Co.</i>
Kennedy, A. L.	<i>Philadelphia.</i>
Kerr, James W.	<i>York, York Co.</i>
†Kerfoot, George B.	<i>Lancaster.</i>
King, Charles R.	<i>Philadelphia.</i>
†Klapp, William H.	<i>do.</i>
Knight, W. L.	<i>do.</i>
Knox, Wm. Morrow	<i>Baumstown.</i>
Koehler, J. G.	<i>Schuylkill Haven.</i>
Lajus, D. Paul	<i>Philadelphia.</i>
†Lang, Edmund	<i>do.</i>
Lamb, Jno. F.	<i>Frankford.</i>
La Roche, C. Percy	<i>Philadelphia.</i>
La Roche, R.	<i>do.</i>
†Leib, Henry F.	<i>do.</i>
Levis, M. M.	<i>do.</i>
Leidy, Joseph	<i>do.</i>
Lewis, Samuel	<i>do.</i>
Littell, S.	<i>do.</i>
Lowman, Jno.	<i>Johnstown, Cambria Co.</i>
Luden, J. B.	<i>Huntingdon.</i>
Ludlow, J. L.	<i>Philadelphia.</i>
Madison, R. L.	<i>do.</i>
Mahon, O. S.	<i>Columbia.</i>
Martin, Charles H.	<i>Allentown.</i>
Martin, J. A.	<i>Whitemarsh.</i>
Mason, E. H.	
†Mathews, Charles H.	<i>Doylestown.</i>

Mayburry, William	<i>Philadelphia.</i>
McClellan, J. H. B.	<i>do.</i>
McClurg, J. R.	<i>Chandlerville.</i>
McCorkle, W. S.	<i>Columbia.</i>
McCoy, John M.	<i>Bellefonte.</i>
McCulloch, John	<i>Huntingdon.</i>
McIlvain, William	<i>York.</i>
Meigs, Charles D.	<i>Philadelphia.</i>
Meigs, J. A.	<i>do.</i>
†Mitchell, John K.	<i>do.</i>
Mitchell, Thomas D.	<i>do.</i>
Moore, John Wilson	<i>do.</i>
Morris, Casper	<i>do.</i>
Morris, J. Cheston	<i>do.</i>
†Morton, Samuel George	<i>do.</i>
Morton, C. J.	<i>Springfield.</i>
Mosser, D. O.	<i>Breinyville.</i>
Mowry, Robert B.	<i>Alleghany City.</i>
Muhlenburg, F. H.	<i>Lancaster.</i>
Muhlenburg, Henry E.	<i>do.</i>
Murphy, Andrews	<i>Parkesburg, Chester Co.</i>
†Mütter, Thomas D.	<i>Philadelphia.</i>
Maudain, Arnold	<i>do.</i>
Nebinger, A.	<i>do.</i>
Neill, John	<i>do.</i>
Newberry, Milton	<i>Whitemarsh.</i>
Norris, George W.	<i>Philadelphia.</i>
†Ogier, S. A.	<i>Frazer, Chester Co.</i>
Orlady, H.	<i>Petersburg, Huntingdon Co.</i>
Osler, O.	<i>Philadelphia.</i>
Packard, John H.	<i>do.</i>
Page, William Byrd	<i>do.</i>
Palmer, Henry	
Pancoast, Joseph	<i>Philadelphia.</i>
Parker, Samuel	<i>East Hempfield, Lancaster Co.</i>
†Parrish, Isaac	<i>Philadelphia.</i>
Parrish, Joseph	<i>Germanstown.</i>
Parry, Ely	<i>Lancaster.</i>
†Patterson, Henry S.	<i>Philadelphia.</i>
†Patterson, George W.	<i>do.</i>
Paul, J. Rodman	<i>do.</i>

Pennypacker, I. A.	<i>Philadelphia.</i>
Pepper, William	<i>do.</i>
Piper, W. A.	<i>do.</i>
Pollock, A. M.	<i>Pittsburg.</i>
Powell, F. W.	<i>Philadelphia.</i>
†Randolph, Jacob	<i>do.</i>
Raub, J. K.	<i>Quarryville.</i>
Ream, John	<i>Lancaster.</i>
Reese, J. J.	<i>Philadelphia.</i>
†Remington, Isaac	<i>do.</i>
Richards, C. O.	<i>Lancaster.</i>
Richardson, B.	
Richardson, T.	<i>Brooklyn.</i>
Richardson, W. L.	
Reiser, F.	<i>Frazer, Chester Co.</i>
Rivinus, Edward F.	<i>Westchester.</i>
Rodman, Lewis	<i>Philadelphia.</i>
†Rogers, James B.	<i>do.</i>
Rogers, R. E.	<i>do.</i>
Rohrer, B.	<i>Columbia.</i>
Ross, J. D.	<i>Williamsburg.</i>
Rothrock, Abm.	<i>Mc Veytown.</i>
Ruschenberger, W. S. W.	<i>Philadelphia.</i>
Sargent, jr., Winthrop	<i>West Philadelphia.</i>
Schrack, Jno.	<i>Shannonville.</i>
Sheller, Adam	<i>Mt. Joy, Lancaster Co.</i>
Shelmerdine, R. Q.	<i>Philadelphia.</i>
Schneck, B. F.	<i>Lebanon, Lancaster Co.</i>
Shoemaker, Charles	<i>Jenkintown.</i>
Sholl, E. R.	<i>Reading.</i>
Slocum, A. M.	<i>Philadelphia.</i>
Smaltz, J. H.	<i>do.</i>
Smith, jr., Francis G.	<i>do.</i>
Smith, H. H.	<i>do.</i>
Smith, H. Y.	<i>do.</i>
Smith, L. A.	<i>New Milford.</i>
Smith, Moses B.	<i>Philadelphia.</i>
Smith, R. K.	<i>do.</i>
†Spencer, Thomas D.	<i>do.</i>
Spooner, Edward A.	<i>do.</i>
Stanton, David	<i>New Brighton, Beaver Co.</i>

Steward, Scott	<i>Philadelphia.</i>
Stewart, J. D.	<i>do.</i>
Stewardson, Thomas	<i>do.</i>
Stiles, R. Cresson	<i>Westchester.</i>
Stillé, Alfred	<i>Philadelphia.</i>
†Stillé, Moreton	<i>do.</i>
Stocker, A. E.	<i>do.</i>
Strawbridge, James D.	<i>Danville.</i>
Stubbs, J. B.	<i>Rock P. O., Lancaster Co.</i>
Swayne, Caleb	<i>London Grove.</i>
Swift, Edward	<i>Easton.</i>
Thomas, John R.	
Thomas, George W.	<i>Norristown.</i>
Thomas, Isaac	<i>Westchester.</i>
†Thomas, R. P.	<i>Philadelphia.</i>
Thomason, W. D.	<i>Harrisburg.</i>
Thompson, William S.	<i>Lancaster.</i>
Todd, J. E.	<i>Philadelphia.</i>
Townsend, R. H.	<i>do.</i>
Townsend, W. W.	<i>Chatham.</i>
Treichler, S. K.	<i>Jonestown.</i>
Troth, S. N.	
Turnbull, Laurence	<i>Philadelphia.</i>
Uhler, John	<i>do.</i>
Vanbuskirk, Wm. A.	<i>Pottstown, Montgomery Co.</i>
Wadsworth, Henry	<i>Philadelphia.</i>
Walker, Isaac R.	<i>Spread Eagle, Chester Co.</i>
Wallace, Edward	<i>Reading.</i>
Wallace, Ellerslie	<i>Philadelphia.</i>
Watson, William H.	<i>Bedford.</i>
West, Francis	<i>Philadelphia.</i>
Weidler, Isaac C.	<i>Leacock P. O., Lancaster Co.</i>
Wilcox, Alexander	<i>Philadelphia.</i>
Wiley, Penrose	<i>Leesport.</i>
Wilson, William J.	<i>Potter's Mill, Centre Co.</i>
Wilson, Elwood	<i>Philadelphia.</i>
Wiltbank, John	<i>do.</i>
Wimley, G. W.	<i>Limerick Township, Mont. Co.</i>
Wister, Caspar	<i>Philadelphia.</i>
Wood, George B.	<i>do.</i>
Wood, Thomas	<i>Muncy, Lycoming Co.</i>

Worthington, Wilmer	<i>Westchester.</i>
Yardley, Thomas H.	<i>Philadelphia.</i>
Zeigler, J. L.	<i>Mount Joy P. O., Lancaster Co.</i>
Zeigler, George J.	<i>Philadelphia.</i>
Zulick, S. M.	<i>Orwigsburg.</i>

DELAWARE.

Askew, Henry F.	<i>Wilmington.</i>
†Baker, George R.	<i>do.</i>
Bullock, W. R.	<i>do.</i>
Bush, Lewis P.	<i>do.</i>
Clark, R. H.	<i>Milford.</i>
Couper, James	<i>New Castle.</i>
Cummins, William	<i>Smyrna.</i>
Dailey, E. D.	<i>do.</i>
Grimshaw, A. H.	<i>Wilmington.</i>
Hamilton, Wm. N.	<i>Cantwell's Bridge.</i>
Johnson, R. P.	<i>Wilmington.</i>
Jones, W.	<i>Vernon.</i>
Jump, Isaac.	<i>Dover.</i>
Merritt, John	<i>Middletown.</i>
Mitchell, J. R.	<i>Milford.</i>
Morris William W.	<i>Dover.</i>
†Perkins, John D.	<i>Smyrna.</i>
Porter, Robert R.	<i>Wilmington.</i>
Saulsbury, G.	<i>Dover.</i>
†Smith, Thomas Mackie	<i>Brandywine.</i>
Thomson, James W.	<i>Wilmington.</i>
Wales, J. P.	<i>Brandywine.</i>
Wilson, James F.	<i>Wilmington.</i>

MARYLAND.

†Alexander, Ashton	<i>Baltimore.</i>
Armitage, James	<i>do.</i>
Atkinson, Thomas C.	<i>do.</i>
†Baer, M. S.	<i>do.</i>
†Baker, Alfred	<i>do.</i>
Baldwin, E. C.	<i>do.</i>
Baltzell, W. H.	<i>do.</i>
Baxley, Willis H.	<i>do.</i>
Belt, W. F.	<i>Prince George.</i>

Bolton, James	<i>Baltimore.</i>
Bond, Thomas E.	<i>Falston</i>
Bordley, James	<i>Baltimore.</i>
Boyd, Charles	<i>Frederick City.</i>
†Briscoe, John H.	<i>Baltimore.</i>
Buckler, Thomas H.	<i>do.</i>
Chamberlaine, J. E. M.	<i>Easton.</i>
Chew, Samuel	<i>Baltimore.</i>
Clarke, S. R.	<i>do.</i>
Cohen, Joshua J.	<i>do.</i>
Coleman, James S.	<i>do.</i>
Cox, C. C.	<i>Easton.</i>
Crane, W. B.	<i>Baltimore.</i>
Dallam, William M.	<i>Harford Co.</i>
Davis, William H.	<i>Baltimore.</i>
Dawson, James	<i>St. Michael's, Talbot Co.</i>
Donaldson, Francis	<i>Baltimore.</i>
†Dorsey, Lloyd	<i>Frederick.</i>
Dulin, Alexander F.	<i>Baltimore.</i>
Dunbar, John R. W.	<i>do.</i>
Duvall, E. P.	<i>do.</i>
Duvall, W.	<i>Washington, Montgomery Co.</i>
Field, Philip S.	<i>Baltimore.</i>
Fonerden, John	<i>do.</i>
†Frick, Charles	<i>do.</i>
Gibson, George S.	<i>do.</i>
Gibson, J. Grigg	<i>Fredericktown.</i>
Gilman, J.	<i>Baltimore.</i>
Goldsborough, H. T.	<i>Easton, Talbot Co.</i>
Grieves, H. G.	<i>Cambridge.</i>
Gunn, John P.	<i>Baltimore.</i>
†Handy, Samuel K.	<i>Princess Ann.</i>
Hardcastle, E. M.	<i>Trappe.</i>
†Harris, Chapin A.	<i>Baltimore.</i>
Hebb, T. W.	<i>Mount Olive.</i>
Hemsley, W.	<i>Caroline Co.</i>
Hintze, F. E. B.	<i>Baltimore.</i>
Hopkins, Joel	<i>Elkridge Landing, Howard Co.</i>
Houck, J. W.	<i>Baltimore.</i>
Inloes, H. A.	<i>do.</i>
†Jameson, sen., Horatio G.	<i>do.</i>

†Jenkins, Solomon M.	<i>Easton.</i>
Johnstone, C.	<i>Baltimore.</i>
Kemp, W. M.	<i>do.</i>
Kennard, T. C.	<i>Harmony.</i>
Kennedy, S. D.	<i>Baltimore.</i>
Kinneman, P. S.	<i>do.</i>
Kinney, jr., William	<i>do.</i>
Lawrence, G. W.	<i>Catonsville,</i>
Leonard, William T.	<i>Baltimore.</i>
McKew, D. I.	<i>do.</i>
Macgill, C.	<i>Hagerstown.</i>
Martin, Thomas W.	<i>Dorchester Co.</i>
Matthews, Thomas	<i>Milestown.</i>
Miltenberger, G. W.	<i>Baltimore.</i>
Monkur, John C. S.	<i>do.</i>
Monmonier, J. F.	<i>do.</i>
Morgan, G. E.	<i>do.</i>
Murray, R. (U. S. A.)	<i>do.</i>
Muse, J. A.	<i>Cambridge.</i>
O'Donnel, D. A.	<i>Baltimore.</i>
Piggott, A. S.	<i>do.</i>
Pinckney (Ninian (U. S. N.))	<i>Annapolis.</i>
†Power, William	<i>Baltimore.</i>
Riley, William	<i>do.</i>
Roberts, George C. M.	<i>do.</i>
Robinson, Alexander C.	<i>do.</i>
†Roby, Joseph	<i>do.</i>
Sappington, J. K.	<i>Havre-de-Grace.</i>
Sappington, Thomas	<i>Liberty, Frederick Co.</i>
Simpson, J.	
Smith, Nathan R.	<i>Baltimore.</i>
Smith, Samuel P.	<i>Cumberland.</i>
Steiner, L. H.	<i>Baltimore.</i>
Steuart, R. S.	<i>do.</i>
Stevenson, J. S.	<i>do.</i>
Stokes, William H.	<i>do.</i>
†Teackle, John N.	<i>do.</i>
†Theobald, Elisha W.	<i>do.</i>
†Thomas, Richard H.	<i>do.</i>
†Tyler Samuel	<i>Frederick City.</i>
Ward, J. Robert	<i>Baltimore.</i>

Warfield, Jesse L.	<i>Westminster, Carroll Co.</i>
Warren, Edward	<i>Baltimore.</i>
Webster, John Lee	<i>do.</i>
White, A. M.	<i>Easton.</i>
† White, S. N. C.	<i>Pooleville.</i>
Williams, W.	<i>Somerset Co.</i>
Wilson, H. P. C.	<i>Baltimore.</i>
Womble, P. M.	<i>do.</i>
Wroth, Peregrine	<i>Chestertown.</i>
Wynne, James	<i>Baltimore.</i>
Yeates, John L.	<i>do.</i>

DISTRICT OF COLUMBIA.

Antiselle, Thos.	<i>Washington.</i>
† Berry, William H.	<i>do.</i>
Bohrer, B. S.	<i>Georgetown.</i>
Boyle, Cornelius	<i>Washington.</i>
Busey, S. C.	<i>do.</i>
Coolidge, R. H.	<i>do.</i>
Dove, G. M.	<i>do.</i>
Duhamel, W. J. C.	<i>do.</i>
Eliot, Johnson	<i>do.</i>
Garnett, A. Y. P.	<i>do.</i>
Hall, J. C.	<i>do.</i>
Hellen, B. J.	<i>do.</i>
Holston, J. G. F.	<i>do.</i>
Johnston, William P.	<i>do.</i>
Jones, W.	<i>do.</i>
Lindsley, Harvey	<i>do.</i>
Lieberman, C. H.	<i>do.</i>
Magruder, Hez.	<i>Georgetown.</i>
Miller, Thomas	<i>Washington.</i>
Morgan, James E.	<i>do.</i>
Nichols, C. H.	<i>do.</i>
Richards, Jno.	<i>do.</i>
Riley, J. C.	<i>do.</i>
Riley, Joshua	<i>Georgetown.</i>
Stone, Robert K.	<i>do.</i>
Thomas, John M.	<i>do.</i>
Tyler, Grafton	<i>do.</i>

Waring, I. J.

Washington.

Young, N.

do.

VIRGINIA.

Allen, B. W.

Culpepper C. H.

Ashby, O. H.

Danville.

Atkinson, Thomas P.

Big Spring, Taylorsville.

Barr, S. B. F. C.

Wheeling.

Bates, W. J.

Pittsylvania.

Belt, H. S.

Richmond.

Bolton, James

do.

Brooks, John N.

Alexandria.

Brown, I. C.

Acowac.

Brown, P. F.

Hicksford.

Browne, O. A.

Louisa C. H.

Burruss, J. L.

Richmond.

Cabell, J. G.

University of Virginia.

Cabell, James L.

Fredericksburg.

Carmichael, George F.

Loudon Co.

Cochran, William B.

Richmond.

Coleman, J. C.

do.

Conway, James H.

Norfolk.

Cooke, A. T. M.

Half-Way House, York Co.

Corbin, G. Lane

Richmond.

Cox, Thomas E.

Danville.

Craghead, W. G.

Louisburg.

Creigh, Thomas

Richmond.

Cunningham, Jno. A.

Faronville.

Dillon, A. S.

Genito, Powhatan Co.

Dorset, J. L.

Richmond.

Dove, James

do.

Dove, Jno.

White Post, Clarke Co.

Faunt Le Roy, John

Wheeling.

Frissel, John

Richmond.

Gibson, Charles Bell

Richmond.

Gilbert, R. H.

Richmond.

†Gooch, P. Claiborne

do.

Hancock, F. W.

Cartersville P. O., Cumberland.

Harrison, E. J.

Richmond.

Haskins, W. D.

do.

Haxall, Robert W.

Hildreth, E. A.	<i>Wheeling.</i>
Houston, M. H.	<i>do.</i>
Howard, Henry	<i>University of Virginia.</i>
Hupp, I. C.	<i>Wheeling.</i>
Hurt, J. M.	<i>Halloway City.</i>
†Johnson, Carter P.	<i>Richmond.</i>
Johnson, James	<i>Hicksford.</i>
Joynes, Levin S.	<i>Richmond.</i>
Kemper, Charles R.	<i>Woodville, Rappahannock Co.</i>
Lake, R. P.	<i>Richmond.</i>
Lee, George	<i>Leesburg, Loudon Co.</i>
Leigh, H. G.	<i>Petersburg.</i>
Lewis, M. M.	<i>Alexandria.</i>
Lewis, T.	<i>King and Queen, Stevensville P. O.</i>
Little, John	<i>Richmond.</i>
Lumpkin, Jno. G.	<i>Hanover.</i>
Lyle, James	<i>Farmville.</i>
Magill, Henry D.	<i>Leesburg.</i>
Mason, A. H.	<i>Falmouth.</i>
†Massie, H.	<i>Charlottesville.</i>
McCaw, J. B.	<i>Richmond.</i>
McElhenny, S. W.	<i>Wheeling.</i>
McGuire, Hugh H.	<i>Winchester.</i>
Merriwether, W. D.	<i>Richmond.</i>
Merritt, A. T. B.	<i>do.</i>
Mettauer, J. P.	<i>Prince Edward C. H.</i>
Mills, Charles S.	<i>Richmond.</i>
Moore, W. J.	<i>Norfolk.</i>
Morrison, E. A.	<i>Lawrence.</i>
Moseley, W. P.	<i>Buckingham.</i>
Nicholson, G. L.	<i>Middlesex Co.</i>
Parker, W. W.	<i>Richmond.</i>
Patrick, S.	<i>Kanawha C. H.</i>
Patteson, Samuel A.	<i>Manchester, Chesterfield.</i>
Patteson, W. A.	<i>Richmond.</i>
Payne, A. S.	<i>Paris, Fauquier Co.</i>
Peebles, J. F.	<i>Petersburg.</i>
Penticolas, A. E.	<i>Richmond.</i>
Phillips, W. H.	<i>Sublett's P. O., Powhatan Co.</i>
Pollard, Thomas	<i>Richmond.</i>
Powell, H. B.	<i>Alexandria.</i>

Powell, J. F.	<i>Middlebury.</i>
Power, R. H.	<i>Yorktown.</i>
Quarles, Charles	<i>Mechanicsville, Louisa Co.</i>
Randolph, Robert C.	<i>Mellwood P. O., Clarke Co.</i>
Roddey, F. W.	<i>Richmond.</i>
Rogers, R. E.	<i>University of Virginia.</i>
Schoolfield, I. N.	<i>Petersburg.</i>
Scott, Martin P.	<i>Richmond.</i>
†Selden, Henry	<i>Norfolk.</i>
Selden, William	<i>do.</i>
Silvester, R. W.	<i>do.</i>
Smith, J. W.	<i>Petersburg.</i>
Snead, Albert	<i>Richmond.</i>
Spencer, P. C.	<i>Petersburg.</i>
Tabb, J. Prosser	<i>Gloucester Co.</i>
Taylor, Kidder R.	<i>Columbia.</i>
Taylor, W. H.	<i>Richmond.</i>
Terrill, G. F.	<i>Caroline Co.</i>
Thweatt, J. J.	<i>Petersburg.</i>
Trent, W. W.	<i>Richmond.</i>
Trent, P.	<i>do.</i>
†Trigg, Daniel	<i>Abingdon.</i>
Tucker, A. B.	<i>Winchester.</i>
Tucker, David H.	<i>Richmond.</i>
†Upshur, George L.	<i>Norfolk.</i>
Walke, J. Wistar	<i>Chesterfield.</i>
Walshe, Samuel	<i>Prince George Co.</i>
Wellford, Beverly R.	<i>Richmond.</i>
Wellford, J. S.	<i>Fredericksburg.</i>
White, Luke	<i>Petersburg.</i>
Williman, A. B.	<i>Norfolk.</i>
Wilson, W. E.	<i>Richmond.</i>
Wilson, G. A.	<i>do.</i>
Wily, J. B.	<i>Macon.</i>
Withers, Thomas	<i>Petersburg.</i>
Worsham, H. C.	<i>Dinwiddie.</i>
Wortham, A. G.	<i>Richmond.</i>
Yearby, George T.	<i>Eastville, Northampton.</i>

NORTH CAROLINA.

Belt, H. Singleton	<i>Winston, Forsyth C. H.</i>
Dewey, C. F.	<i>Goldsboro'.</i>
Dickson, J. H.	<i>Wilmington.</i>
Irwin, J. S.	<i>Marion.</i>
Gibbon, J. H.	<i>Charlotte.</i>
Happolt, C.	<i>Morganton.</i>
Jones, J. B.	<i>Chapel Hill.</i>
Mabrey, B. W.	<i>Tarboro'.</i>
Manson, O. F.	<i>Lynessville.</i>
Mercer, Jno. R.	<i>Tarborough.</i>
McKee, W. H.	<i>Raleigh.</i>
McKee, W. L.	<i>Morgantown, Burke Co.</i>
Myers, J. G. B.	<i>Washington.</i>
Norwood, Walter A.	<i>Hillsboro'.</i>
Pierce, A. B.	<i>Halifax.</i>
Pittman, Newson J.	<i>Tawboro'.</i>
Summerell, J. J.	<i>Salisbury.</i>
Thomas Wm. Geo.	<i>Tarborough.</i>
Thomas, W. G.	<i>Wilmington.</i>
Thompson, Jno. R.	<i>Raleigh.</i>
Tull, J. G.	<i>Newbern.</i>
Warren, E.	<i>Edenton.</i>
Warren, T. D.	<i>do.</i>
Warren, W. C.	<i>do.</i>
Webb, William	<i>Hillsboro'.</i>

SOUTH CAROLINA.

Bailey, R. S.	<i>Charleston.</i>
Barker, Sandford W.	<i>do.</i>
Barratt, Jno. P.	<i>Abbeville.</i>
†Bellinger, John	<i>Charleston.</i>
Bradley, B. W.	<i>King's Tree, Williamsburg.</i>
Brown, Pike	<i>Barnwell.</i>
Cain, D. J.	<i>Charleston.</i>
Clawson, C. L.	<i>Nation Ford.</i>
Coffin, Amory	<i>Aiken.</i>
Crane, Joseph S.	<i>Columbia.</i>
Dawson, J. L.	<i>Charleston.</i>
De Saussure, H. W.	<i>do.</i>

Elfe, Edward	<i>Charleston.</i>
Elliott, Thomas A.	<i>Orangeburgh.</i>
Fair, Samuel	<i>Columbia.</i>
†Flagg, Beling	<i>Charleston.</i>
Ford, Wm. H.	<i>do.</i>
Frost, Henry R.	<i>do.</i>
†Gaillard, Peter C.	<i>do.</i>
Gaston, J. McF.	<i>Columbia.</i>
Geddings, E.	<i>Charleston.</i>
Geddings, J. E. M.	<i>do.</i>
Gibbes, N. H.	<i>St. Helena.</i>
Gibbs, Robert W.	<i>Columbia.</i>
Goodwyn, T. J.	<i>Orangeburg.</i>
Hazell, Andrew	<i>All Saints.</i>
Henderson, E. R.	<i>Blue House P. O.</i>
Holbrook, J. E.	<i>Charleston.</i>
Hook, J. H.	<i>St. Matthew's.</i>
Horlbeck, Elias	<i>Charleston.</i>
Horlbeck, W. C.	<i>do.</i>
Huger, W. H.	<i>do.</i>
Jervey, James P.	<i>do.</i>
Kinlock, R. A.	<i>do.</i>
Lebby, Robert	<i>do.</i>
Lynch, John	<i>Cheraw.</i>
Marshall, J. W. W.	<i>Abbeville C. H.</i>
May, Jno.	<i>St. George's P. O.</i>
Mayes, J. A.	<i>Maysville.</i>
McKain, Wiley J.	<i>Camden.</i>
Michel, R. F.	<i>Charleston.</i>
Michel, M.	<i>do.</i>
Miles, F. T.	<i>do.</i>
Miller, W. C.	<i>Georgetown.</i>
†Mitchell, Edward	<i>Edisto.</i>
Mitchell, J. S.	<i>Charleston.</i>
Mittag, J. F. G.	<i>Lancaster.</i>
Mobley, W. W.	<i>Lancasterville.</i>
Moore, M. S.	<i>Statebury, Sumter Co.</i>
Moultrie, James	<i>Charleston.</i>
Moultrie, W. L.	<i>St. John's Berkley.</i>
Muller, G.	<i>Lexington.</i>
Ogier, T. L.	<i>Charleston.</i>

Porcher, Francis Y.	<i>Charleston.</i>
Porcher, F. Peyer	<i>do.</i>
Prioleau, J. Ford.	<i>do.</i>
Prioleau, Thomas G.	<i>do.</i>
Ravenel, St. Julien	<i>do.</i>
Ready, J. C.	<i>Edgefield.</i>
Robertson, F. M.	<i>Charleston.</i>
Robertson, T. S.	<i>Winsboro'.</i>
Rodrigues, B. A.	<i>Charleston.</i>
Shepherd, Charles W.	<i>do.</i>
†Simons, T. Y.	<i>do.</i>
Smith, Thomas	<i>Society Hill.</i>
Talley, A. N.	<i>Columbia.</i>
Waring, Morton	<i>Black Oak.</i>
White, O.	<i>Charleston.</i>
Williams, Alexander	<i>Chesterfield.</i>
Winthrop, Henry	<i>Charleston.</i>
Wragg, William F.	<i>do.</i>

GEORGIA.

Arnold, Richard D.	<i>Savannah.</i>
Banks, J. T.	<i>Zebulon.</i>
Benson, J. W.	<i>Savannah.</i>
Black, R. C.	<i>Augusta.</i>
Boring, Jesse	<i>La Grange.</i>
Boyd, A. M.	<i>Cave Spring, Floyd Co.</i>
Broadhurst, Wm.	<i>Augusta.</i>
Brown, H. W.	<i>Atlanta.</i>
Bullock, W. Gaston	<i>do.</i>
Campbell, H. F.	<i>Augusta.</i>
Campbell, Robert	<i>do.</i>
Colley, F. S.	<i>Monroe.</i>
Darnall, T. M.	<i>Atlanta.</i>
Doughty, W. H.	<i>Augusta.</i>
Dugas, L. A.	<i>do.</i>
Eve, Joseph A.	<i>do.</i>
Ford, L. D.	<i>do.</i>
Garvin, J. P.	<i>do.</i>
Gilbert, J. C.	<i>Perry.</i>
Green, James N.	<i>Macon.</i>
Harris, Stephen N.	<i>Savannah.</i>

Harris, Juriah	<i>Augusta.</i>
Hofey, Thomas	<i>Columbus.</i>
Hollingsworth, W. T.	<i>Buckhead.</i>
Howard, J. Gordon	<i>Savannah.</i>
Jones, Jno. W.	<i>Atlanta.</i>
Jones, Jos.	<i>Augusta.</i>
Jones, W. B.	<i>Atlanta.</i>
Jones, W. S.	<i>Augusta.</i>
Kollock, Phineas M.	<i>Savannah.</i>
Le Hardy, J. C.	<i>do.</i>
Logan, J. P.	<i>Atlanta.</i>
Means, A. H.	<i>Augusta.</i>
Moore, Richard D.	<i>Athens.</i>
Nottingham, C. B.	<i>Macon.</i>
Ogilby, Hugh J.	<i>Madison.</i>
Oliver, M. H.	<i>Atlanta.</i>
Padelford, George P.	<i>Savannah.</i>
Phinizy, T. B.	<i>Augusta.</i>
Posey, John F.	<i>Savannah.</i>
Powell, Thomas S.	<i>Sparta.</i>
Powers, N. F.	<i>Harrison.</i>
Quintard, C. T.	<i>Roswell.</i>
Read, James B.	<i>Savannah.</i>
Richardson, C. P.	<i>do.</i>
Robertson, J. G.	<i>do.</i>
Ruffin, W. R.	<i>Augusta.</i>
Simmons, J. N.	<i>Griffin.</i>
Smith, B. M.	<i>Atlanta.</i>
Thomas, A. G.	<i>do.</i>
Thompson, E. J.	<i>Augusta.</i>
Tufts, Johnson B.	<i>Savannah.</i>
Walton, C. R.	<i>Augusta.</i>
Westmoreland, J. G.	<i>Atlanta.</i>

ALABAMA.

Alexander, Abm. F.	<i>Eutaw.</i>
Anderson, L. H.	<i>Sumterville.</i>
Anderson, W. H.	<i>Mobile.</i>
Bass, W. J.	<i>Stevenson.</i>
Blakey, Boling A.	<i>Montgomery.</i>
Boling, Wm. M.	<i>do.</i>

Bozeman, N.	<i>Montgomery.</i>
Cabell, P. H.	<i>Selma.</i>
†Clanton, S. W.	<i>Warsaw.</i>
Cotnam, T. T.	<i>Stevenson.</i>
Coons, J. B.	<i>Courtland.</i>
Dement, J. J.	<i>Meridianville.</i>
Denny, A.	<i>Suggsville.</i>
English, I. A.	<i>Cahaba.</i>
Gordon, F. E.	<i>Marion.</i>
Hargraves, J. T.	<i>Florence.</i>
Johnson, W. B.	<i>Marion, Perry Co.</i>
Jones, Benjamin.	<i>Montgomery.</i>
Leftwich, W. D.	<i>Huntsville.</i>
Lopez, A.	<i>Mobile.</i>
Malone, T. Stith	<i>Athens.</i>
Meriwether, G.	<i>Line Creek.</i>
Miller, R.	<i>Mobile.</i>
Morris, J. Webb	<i>Courtland.</i>
Norris, G. D.	<i>New Market.</i>
Percival, C. F.	<i>Lowndes Co.</i>
Reese, A. J.	<i>Pleasant Hill.</i>
Reese, W. P.	<i>Selma.</i>
Sowell, J. F.	<i>Athens.</i>
Thorton, Wm. H.	<i>Eufaula.</i>
Turney, Isaac N.	<i>Sommerville.</i>
Winn, P. C.	<i>New Berne.</i>

LOUISIANA.

†Barton, Edward H.	<i>New Orleans.</i>
Beard, C.	<i>do.</i>
†Carpenter, Wm. M.	<i>do.</i>
Dowler, Bennett	<i>do.</i>
Fenner, E. D.	<i>do.</i>
†Harrison, J.	<i>do.</i>
Jones, James	<i>do.</i>
New, Robert A.	<i>St. Joseph.</i>
Nott, G. A.	<i>New Orleans.</i>
Richardson, J. G.	<i>do.</i>
Scruggs, S. O.	<i>Clantonville.</i>
Semmes, A. J.	<i>New Orleans.</i>
Simonds, J. C.	<i>do.</i>

MISSISSIPPI.

Cain, J. S.	<i>Pontotoc.</i>
Divine, K. C.	<i>Sharon.</i>
†Grafton, Thomas J.	<i>Rodney.</i>
Keirn, G.	<i>Lexington, Holmes Co.</i>
Lowe, John T.	<i>Aberdeen.</i>
Shufford, F. B.	<i>Holly Springs.</i>
Williams, William G.	<i>Rodney.</i>

TENNESSEE.

Abernathy, J. J.	<i>Hockerville.</i>
Atchinson, T. A.	<i>Nashville.</i>
Avent, B. W.	<i>Murfreesborough.</i>
Baskette, W. T.	<i>do.</i>
Bethshares, H. H.	<i>Nashville.</i>
Bowling, W. K.	<i>do.</i>
Boyd, J. M.	<i>Knoxville.</i>
Brannock, J. M.	<i>McLemoresville.</i>
Buchanan, A. H.	<i>Nashville.</i>
Burford, J. S.	<i>Whiteville.</i>
Callander, Jno. H.	<i>Nashville.</i>
Cavenagh, W. C.	<i>Memphis.</i>
Chetham, Jno. L.	<i>Nashville.</i>
Chetham, W. A.	<i>do.</i>
Childress, W. H.	<i>do.</i>
Clayton, H. H.	<i>Murfreesboro'.</i>
Clements, H. M.	<i>Clements ville.</i>
Clements, W. M.	<i>Gainsboro'.</i>
Cliff, D. B.	<i>Franklin.</i>
Conwell, Ira	<i>Nashville.</i>
Currey, R. O.	<i>Knoxville.</i>
Dabney, C. R.	<i>Clarks ville.</i>
Dashiel, W. B.	<i>Shelbyville.</i>
Davis, P. W.	<i>Chapel Hill.</i>
Epperson, J. P.	<i>Pulaski.</i>
Estill, Wallace	<i>Winchester.</i>
Evans, R. F.	<i>Shelbyville.</i>
Eve, Paul F.	<i>Nashville.</i>
Ewing, Andrew B.	<i>Franklin.</i>
Ford, Jno. P.	<i>Nashville.</i>

Foster, R. C.	<i>Nashville.</i>
Grant, George	<i>Memphis.</i>
Grant, George R.	<i>do.</i>
Guthrie, C. B.	<i>do.</i>
Haggard, W. D.	<i>Gallatin.</i>
Harris, S. H.	<i>Nashville.</i>
Harris, Zeno	<i>Memphis.</i>
Haskins, E. B.	<i>Nashville.</i>
Henderson, Eugene	<i>Murfreesboro'.</i>
Hoyte, James W.	<i>Nashville.</i>
Illson, B. C.	<i>Lebanon.</i>
Jennings, Thomas R.	<i>Nashville.</i>
Johnson, J. L. C.	<i>Clarksville.</i>
Jones, A.	<i>Shelbyville.</i>
Jones, W. P.	<i>Nashville.</i>
Keller, James M.	<i>Memphis.</i>
Kelly, John D.	<i>Nashville.</i>
Kennedy, Thomas J.	<i>Cornersville.</i>
Lawrence, J. M.	<i>Nashville.</i>
Lenoir, B. B.	<i>Lenoir P. O.</i>
Lindsley, J. B.	<i>Nashville.</i>
Lipscomb, Thomas	<i>Shelbyville.</i>
Litton, A.	<i>Nashville.</i>
Logue, J.	<i>Rural Hill.</i>
Long, J. A.	<i>Cantrel Cross Roads.</i>
May, J. F.	<i>Nashville.</i>
McMurray, S. T.	<i>Spring Hill.</i>
McNutt, J. W.	<i>Kingston.</i>
Maddin, Thomas L.	<i>Nashville.</i>
Malone, H. B.	<i>Gallatin.</i>
Manlove, J. E.	<i>Nashville.</i>
Martin, Robert	<i>do.</i>
Mayfield, George A. I.	<i>do.</i>
Mayfield, S. S.	<i>do.</i>
Millington, John	<i>Memphis.</i>
Moore, W. P.	<i>Mitchelville.</i>
Morton, Jno. H.	<i>Nashville.</i>
Murrell, T. C.	<i>Winchester.</i>
Newnan, J. C.	<i>Nashville.</i>
Owen, Richard	<i>do.</i>
Park, Jno. S.	<i>Franklin.</i>

Perkins, N. C.	<i>Franklin.</i>
Peters, Manly	<i>Knoxville.</i>
†Porter, R. M.	<i>Nashville.</i>
Ransom, M.	<i>Murfreesboro'.</i>
Ramsey, Frank A.	<i>Knoxville.</i>
Rice, F.	<i>Memphis.</i>
Robards, H. R.	<i>do.</i>
Rodgers, James	<i>Knoxville.</i>
Senter, W. D.	<i>Hannas P. O.</i>
Smith, G. F.	<i>Somerville.</i>
Smith, Milo	<i>Chatanooga.</i>
Shanks, Lewis	<i>Memphis.</i>
Stockard, W. P.	<i>Mount Pleasant.</i>
Stroud, F. B.	<i>Gladeville.</i>
Thomas, N. L.	<i>Clarksville.</i>
Towns, J. F.	<i>Farmville.</i>
Watson, Jno. M.	<i>Nashville.</i>
Wharton, S. L.	<i>do.</i>
Wheeler, E. D.	<i>Murfreesborough.</i>
Whitaker, H. M.	<i>Clarksville.</i>
White, J. S.	<i>Memphis.</i>
White, R. G. P.	<i>Pulaski.</i>
Winston, C. K.	<i>Nashville.</i>
Winston, Jno. D.	<i>do.</i>
Woodson, T. M.	<i>Hannas P. O., Summer Co.</i>
Woodward, P. S.	<i>Nashville.</i>
Wright, D. F.	<i>do.</i>

KENTUCKY.

Almon, L. E.	<i>Underwood.</i>
Anderson, N. B.	<i>Louisville.</i>
Annan, Samuel	<i>Hopkinsville.</i>
Atchinson, W. A.	<i>Bowling Green.</i>
Baily, J. R.	<i>Hesper.</i>
Bayless, G. W.	<i>Louisville.</i>
Bell, T. S.	<i>do.</i>
Bemiss, S. M.	<i>do.</i>
Berkley, H.	<i>Bloomfield.</i>
Blackburn, C. J.	<i>Covington.</i>
Bradford, J. T.	<i>Augusta.</i>
Breckinridge, R. J.	<i>Louisville.</i>

Brown, E. O.	<i>Brandonberg.</i>
Bryan, S. B.	<i>Brownsboro'.</i>
Bush, J. M.	<i>Lexington.</i>
Cain, W. S.	<i>Marion.</i>
Caldwell, W. B.	<i>Louisville.</i>
Callaway, A.	<i>do.</i>
Chambers, Wm. M.	<i>Covington.</i>
Chipley, W. S.	<i>Lexington.</i>
Cleaver, W. W.	<i>Lebanon.</i>
Cook, A. B.	<i>Louisville.</i>
Cook, J. B.	<i>Henderson.</i>
Cummins, D.	<i>Louisville.</i>
Davis, E. G.	<i>Underwood.</i>
Disnukes, Jno. L.	<i>Mayfield.</i>
Edwards, R. A.	<i>Wallon, Boone Co.</i>
†Evans, Asbury.	<i>Covington.</i>
Evans, W. R.	<i>Harrodsburg.</i>
Field, S. B.	<i>Columbia.</i>
Fitch, G. N.	<i>Logan's Port.</i>
Fleming, Jno. T.	<i>Flemingbury.</i>
Flint, J. B.	<i>Louisville.</i>
Forée, E. D.	<i>O. Bannons.</i>
Foster, J. Q. A.	<i>Newport.</i>
Freeman, D. L.	<i>Floydsburg.</i>
Gaines, R. W.	<i>Hopkinsville.</i>
Gaither, W. N.	<i>Empire Iron Works.</i>
Gardner, W. H.	<i>Woodsonville.</i>
Gilpin, W. E.	<i>Louisville.</i>
Givins, H. L.	<i>Lagrange.</i>
Goldsmith, M.	<i>Louisville.</i>
Goodloe, A. W.	<i>do.</i>
Gore, J.	<i>Bloomfield.</i>
Griffiths, D. J.	<i>Mt. Washington.</i>
Grubbs, T. H.	<i>Russellville.</i>
Hardin, Jno.	<i>Louisville.</i>
Hays, W.	<i>Covington.</i>
Hewit, R. C.	<i>Louisville.</i>
Hodge, J. A.	<i>Marion.</i>
Holt, W. D.	<i>Covington.</i>
Hopson, H.	<i>Paris.</i>
Johnston, J. C.	<i>Louisville.</i>

Landrum, J. D.	<i>Mayfield.</i>
Letcher, R. P.	<i>Henderson.</i>
Lincoln, J.	<i>Louisville.</i>
Marshall, F.	<i>do.</i>
Marshall, N. B.	<i>do.</i>
Mattingley, C. P.	<i>Bardstown.</i>
Miller, Henry	<i>Louisville.</i>
Miller, W. H.	<i>Henderson.</i>
Montgomery, F. G.	<i>Hopkinsville.</i>
Moore, Thomas J.	<i>Hurrodsburg.</i>
Norwood, Walter A.	<i>Henderson.</i>
O'Reilly, D. J.	<i>Louisville.</i>
Pollin, J. H.	<i>Springfield.</i>
Porter, L. C.	<i>Bowling Green.</i>
Powell, L.	<i>Louisville.</i>
Pusey, H. K.	<i>Garnettsville.</i>
Raphael, B. J.	<i>Louisville.</i>
Ray, L. G.	<i>Paris, Bourbon Co.</i>
Reid, S.	<i>Salem.</i>
Richardson, E.	<i>Monticello.</i>
Richardson, S. B.	<i>Louisville.</i>
Richardson, S. B.	<i>Shelbyville.</i>
Rogers, Lewis	<i>Louisville.</i>
Ronald, G. W.	<i>do.</i>
Russell, L.	<i>Owensborough.</i>
Satterwhite, T. P.	<i>Louisville.</i>
Settle, T. L.	<i>do.</i>
Shiveley, A. H.	<i>Campbellsville.</i>
Singleton, J. W.	<i>Smithland.</i>
Skillman, H. M.	<i>Lexington.</i>
Sneed, W. C.	<i>Frankfort.</i>
Spillman, C. H.	<i>Harrodsburg.</i>
Stevens, B. L.	<i>Union, Boone Co.</i>
Stirman, W. D.	<i>Owensborough.</i>
Sutton, W. L.	<i>Georgetown.</i>
Thomson, D. D.	<i>Louisville.</i>
Todd, L. B.	<i>Lexington.</i>
Turner, W. A.	<i>Mayfield.</i>
Weatherford, E. D.	<i>Louisville.</i>
Wibble, B. M.	<i>do.</i>
Wood, A. C.	<i>Owensboro'.</i>

Wood, B. S.	<i>Trenton.</i>
Yandell, D. W.	<i>Louisville.</i>
Yandell, L. P.	<i>do.</i>

OHIO.

Agard, A. H.	
Allen, P.	<i>Kinsman.</i>
Almy, S. O.	
Armor, S. G.	<i>Dalton.</i>
Arons, Jno. J.	<i>Cincinnati.</i>
Austin, A.	<i>Sandusky.</i>
Awl, Wm. M.	<i>Columbus.</i>
Ayres, A.	<i>Greenville.</i>
Baird, James M.	<i>Bourneville.</i>
Baker, Abraham H.	<i>Cincinnati.</i>
Baker, T. H.	<i>Wayne Co.</i>
Battles, W. S.	<i>Edinburg.</i>
Beck, J. C.	<i>Cincinnati.</i>
Bigelow, J. M.	<i>Lancaster.</i>
Boerstler, G. H.	<i>do.</i>
Bonner, S.	<i>Cincinnati.</i>
Branson, Smith	<i>Chester Hill.</i>
Briggs, J. M.	<i>Marion.</i>
Brown, B. S.	<i>Bellefontaine.</i>
Buckner, Philip J.	<i>Georgetown.</i>
† Butterfield, J.	<i>Columbus.</i>
Carey, Abel	<i>Salem.</i>
Carey, Harvey G.	<i>Dayton.</i>
Carroll, Thomas	<i>Cincinnati.</i>
Carson, William	<i>Chillicothe.</i>
Carter, Francis	<i>Columbus.</i>
Charters, W. M.	<i>Lebanon, Warren Co.</i>
Clements, Joshua	<i>Dayton.</i>
Clendennin, William	<i>Cincinnati.</i>
Cochrane, Charles	<i>Sandusky.</i>
Colton, C. D.	<i>Marietta.</i>
Comegys, C. G.	<i>Cincinnati.</i>
Conklin, H. Smith	<i>Sidney, Shelby Co.</i>
Coons, Israel A.	<i>Dayton.</i>
Corson, J.	<i>Portsmouth.</i>
Cotton, D. B.	<i>do.</i>

Cotton, J. D.	<i>Marietta.</i>
Cox, D. A.	<i>New Paris.</i>
Crane, Isaac L.	<i>Ashland.</i>
Crews, James H.	<i>Upshur, Preble Co.</i>
Crume, Pliny M.	<i>Eaton, Preble Co.</i>
Dandridge, A. S.	<i>Cincinnati.</i>
Davis, Jno.	<i>Dayton.</i>
Davis, W. B.	<i>Cincinnati.</i>
Dawson, Jno.	<i>Columbus.</i>
Dawson, J. R.	<i>Bellbrook.</i>
Dawson, W. W.	<i>Cincinnati.</i>
Delamater, Jacob J.	<i>Cleveland.</i>
Denice, J. C.	<i>Dayton.</i>
Dodge, J. S.	<i>Cincinnati.</i>
Doherty, G. A.	<i>do.</i>
Dorsey, G. Volney	<i>Piqua.</i>
†Drake, Daniel	<i>Cincinnati.</i>
Dunahue, H. J.	<i>Sandusky.</i>
Dunlap, A.	<i>Ripley.</i>
Eaton, T. J.	<i>New Paris, Preble Co.</i>
Effinger, M.	<i>Lancaster.</i>
Ferris, O.	<i>Upper Sandusky.</i>
Ferris, S.	<i>New Westville.</i>
Fisher, Elias	<i>Waynesville, Warren Co.</i>
Foote, H. E.	<i>Cincinnati.</i>
Ford, James B.	<i>Norwalk.</i>
Ford, P. G.	<i>Cincinnati.</i>
Fries, George	<i>Hanoverstown.</i>
Fyffe, E. P.	<i>Urbana.</i>
Gard, J. N.	<i>Greenville.</i>
Gaston, Ephraim	<i>Morristown.</i>
Gilchrist, R. S.	<i>De Graff.</i>
Gillet, B.	<i>Springfield.</i>
Gordon, Thomas W.	<i>Georgetown.</i>
Graham, James	<i>Cincinnati.</i>
Grant, Charles	<i>Cincinnati.</i>
Griswold, L. D.	<i>Elyria.</i>
Grundy, Richard	<i>Columbus.</i>
Hall, W. C.	<i>Fayetteville.</i>
†Harrison, John P.	<i>Cincinnati.</i>
Heighway, A. E.	<i>do.</i>

Helmick, J.	<i>Harrisburg.</i>
Henderson, J. P.	<i>Newville.</i>
Heterick, A. B.	<i>Georgetown.</i>
Hills, Ralph	<i>Columbia.</i>
†Howard, Richard L.	<i>Columbus.</i>
Huestis, Isaac	<i>Chester Hill.</i>
Hughes, C. B.	<i>Cincinnati.</i>
Hunt, Samuel P.	<i>Morrow, Warren Co.</i>
Hurxthal, Frederick T.	<i>Massillon.</i>
Janes, W. W.	<i>Toledo.</i>
Johnson, A. M.	<i>Cincinnati.</i>
Jones, C.	<i>West Union.</i>
Jones, W. W.	<i>Toledo.</i>
Judkins, David	<i>Cincinnati.</i>
Judkins, J. P.	<i>do.</i>
Judkins, William	<i>do.</i>
Kable, W. R.	<i>Bellbrook.</i>
Kelly, P. H.	<i>Waterford.</i>
Kendrick, Oscar C.	<i>Newburg.</i>
Kincaid, W. P.	<i>Neville.</i>
†Koehne, H. F.	<i>Dayton.</i>
Kreider, M. Z.	<i>Lancaster.</i>
Kyle, J. G.	<i>Xenia.</i>
Lamme, W. H.	<i>Dayton.</i>
Lane, E. S.	<i>Sandusky.</i>
Langdon, O. M.	<i>Cincinnati.</i>
Lawson, L. M.	<i>do.</i>
Lecklider, L. G.	<i>New Madison.</i>
Leighton, W. P.	<i>Kenton.</i>
Leonard, B. B.	<i>West Liberty.</i>
Mack, H. O.	<i>Shelby.</i>
Maggini, J. C.	<i>Fayetteville.</i>
Martin, Joshua	<i>Xenia.</i>
Matson, A. F.	<i>Loganville.</i>
McArthur, J. W.	<i>Wilmington.</i>
McDermot, C.	<i>Dayton.</i>
McFarland, J. A.	<i>Tiffin City.</i>
McGrew, J. S.	<i>Montgomery, Hamilton Co.</i>
McIlvaine, R. R.	<i>Cincinnati.</i>
McMally, Thomas	<i>Chillicothe.</i>
McMeens, R. R.	<i>Sandusky.</i>

McMillen, W. L.	<i>Columbus.</i>
Mendenhall, George	<i>Cincinnati.</i>
Mitchell, G. F.	<i>Mansfield.</i>
Mosgrove, Jas. M.	<i>Urbana.</i>
Mount, W.	<i>Cincinnati.</i>
Moxley, M. R.	<i>Wheelersburg.</i>
Moxley, N. K.	<i>Ironton.</i>
Mullen, T. J.	<i>New Richmond.</i>
Munson, A. W.	<i>Kenton.</i>
Murphey, Jno. A.	<i>Cincinnati.</i>
Musgrave, H. B.	<i>do.</i>
Musgrove, A.	<i>Urbana.</i>
Mussey, F. B.	<i>Cincinnati.</i>
Mussey, Reuben D.	<i>do.</i>
Mussey, W. H.	<i>do.</i>
Neff, B.	<i>New Carlisle.</i>
†Norton, J. C.	<i>Marion.</i>
Norton, O. D.	<i>Cincinnati.</i>
Philips, W. H.	<i>Kenton.</i>
Potter, J. F.	<i>Cincinnati.</i>
Raymond, C. H.	<i>do.</i>
Rea, R. L.	<i>do.</i>
Read, A. M.	<i>Norwalk.</i>
Richardson, B. F.	<i>Cincinnati.</i>
Richards, Wolcott	<i>do.</i>
Rives, L. C.	<i>do.</i>
Robertson, C.	<i>Mc Connelsville.</i>
Robison, J. D.	<i>Wooster, Wayne Co.</i>
Rogers, J. G.	<i>New Richmond.</i>
Russell, John W.	<i>Mount Vernon.</i>
Sachse, G. J.	<i>Lancaster.</i>
Safford, R.	<i>Putnam.</i>
Sams, C. C.	<i>Hillsborough.</i>
Sayles, J. A.	<i>Cleveland.</i>
Scarff, W. D.	<i>Bellefontaine.</i>
Schenk, C. F.	<i>Columbus.</i>
Schenk, W. L.	<i>Franklin.</i>
Sheets, L. D.	<i>Dayton.</i>
Sheldon, B.	<i>Cleveland.</i>
Sibley, E. H.	<i>Lodi, Medina Co.</i>
Slusser, Lewis	<i>Canton.</i>

Smith, A. C.	<i>Medina C. H.</i>
Smith, Edwin	<i>Dayton.</i>
Smith, John A.	<i>Piqua.</i>
Smith, J. B.	<i>Cincinnati.</i>
Smith, Samuel M.	<i>Columbus.</i>
Smith, S. Hanbury	<i>do.</i>
Spillman, Henry	<i>Medina.</i>
Steele, H. K.	<i>Dayton.</i>
Stevens, E. B.	<i>Cincinnati.</i>
Stevens, Joshua	<i>Lebanon.</i>
St. John, Samuel	<i>Cleveland.</i>
Strader, D. P.	<i>Cincinnati.</i>
Taggart, T. M.	<i>Dalton.</i>
Taggart, W. W.	<i>Smithville, Wayne Co.</i>
Taggart, J. M.	
Taliaferro, W. I.	<i>Cincinnati.</i>
Tappan, B.	<i>Steubenville.</i>
Taylor, James	<i>Cincinnati.</i>
Thall, W. C.	<i>Fayetteville.</i>
Thomas, K. G.	
Thompson, J. B.	<i>Columbus.</i>
Thompson, R.	<i>do.</i>
Tilden, D.	<i>Sandusky, Erie Co.</i>
Trevitt, Wm.	<i>Columbus.</i>
Tweed, T. M.	<i>Eckmansville.</i>
Updegraff, J. T.	<i>Mount Pleasant.</i>
Vanharlingen, I.	<i>Lebanon.</i>
Vattier, J. L.	<i>Cincinnati.</i>
Walker, J. P.	<i>do.</i>
Waterman, L. D.	<i>do.</i>
Webber, G. C. E.	<i>Cleveland.</i>
West, Henry	<i>Clairsville, Belmont Co.</i>
White, James	<i>Lancaster.</i>
White, John F.	<i>Cincinnati.</i>
White, J. W.	<i>Stockport.</i>
Whiting, A. W.	<i>Newburg.</i>
Williams, I. C.	<i>Bloomington.</i>
Wood, Thomas	<i>Cincinnati.</i>
Woodward, Charles	<i>do.</i>
Wright, James	<i>Belmont.</i>
Wright, M. B.	<i>Cincinnati.</i>

INDIANA.

Austin, T. R.	<i>New Albany.</i>
Ayers, H. P.	<i>Fort Wayne.</i>
Beard, F. W.	<i>Corydon.</i>
Bigelow, A. A.	<i>Attica.</i>
Bowman, C.	<i>New Albany.</i>
Boyd, S. S.	<i>Jacksonburg.</i>
Brelsford, Joseph	<i>Plymouth.</i>
Brown, C.	<i>Indianapolis.</i>
Brown, J. H.	<i>Lawrenceburg.</i>
Boynton, H. G.	<i>Elizabethtown.</i>
Buchtell, J. B.	<i>South Bend.</i>
† Bullard, Talbut	<i>Indianapolis.</i>
Butler, A. B.	<i>Richmond.</i>
Cameron, R. A.	<i>Valparaiso.</i>
Castleberry, Isaac	<i>Evansville.</i>
Clapp, A.	<i>New Albany.</i>
Clapp, W. A.	<i>do.</i>
Cogley, T. J.	<i>Madison.</i>
Cornett, W. T. S.	<i>Versailles.</i>
Crandall, R. O.	
Curran, B.	<i>Jeffersonville.</i>
Darnall, M. D.	<i>Bainbridge.</i>
Davis, J. W.	<i>Carlyle.</i>
Davis, S.	<i>Columbus.</i>
Dean, H. K.	<i>Mauckport.</i>
Dicken, James L.	<i>Somerset.</i>
Dickey, William	<i>Centerville.</i>
Erwin, A. J.	
Ferris, A. B.	
Florrer, T. W.	<i>Alamo.</i>
† Fishback, C.	<i>Shelbyville.</i>
Freeman, S. A.	
Glazebrook, L. D.	
Green, Jno. N.	<i>Stilesville.</i>
Harding, M. H.	<i>Lawrenceburg.</i>
Haughton, R. E.	<i>Richmond.</i>
Haymond, R.	<i>Brookville.</i>
Hibbard, James F	
Higday, T.	

Hinkle, J. M.	<i>Carlisle.</i>
Hitt, W. W.	<i>Vincennes.</i>
Horne, S. S.	<i>Marion.</i>
Humphries, Lewis	<i>South Bend.</i>
Hutchinson, David	<i>Mooreville.</i>
Jenis, Samuel	
Jessup, D. H.	<i>Rising Sun.</i>
John, H. V. V.	<i>Indianapolis.</i>
Johnson, Nathan	<i>Cambridge City, Wayne Co.</i>
Jones D. M.	<i>Corydon.</i>
Kennedy, L. H.	<i>Belleville.</i>
Kersey, Vierling	<i>Milton.</i>
Kitchen, J. M.	<i>Indianapolis.</i>
Latta, Milton M.	<i>Goshen.</i>
Leedy, J. K.	<i>Warsaw, Kosciusko Co.</i>
Leonard, S. E.	<i>New Albany.</i>
Linton, S. M.	<i>Columbus.</i>
Lomax, William	<i>Marion.</i>
Lyons, W. B.	<i>Huntington.</i>
Martin, William H.	<i>Rushville.</i>
Macleane, George M.	<i>New Albany.</i>
Mantle, John R.	<i>Vincennes.</i>
Mauzey, R. D.	<i>Rushville.</i>
Maxwell, J. D.	<i>Bloomington.</i>
McPheeters, A.	<i>Lavonia.</i>
Mears, G. W.	<i>Indianapolis.</i>
Mendenhall, Isaac	<i>Ashland, Henry Co.</i>
Meeker, D.	<i>Laporte.</i>
Moffet, Jno.	<i>Rushville.</i>
Morgan, Daniel	<i>Evansville.</i>
Mothershead, F. M.	<i>Indianapolis.</i>
†Mothershead, I. L.	<i>do.</i>
Mullen, Alexander J.	<i>Napoleon, Ripley Co.</i>
Murphy, Edward	<i>New Harmony, Posey Co.</i>
Newland, B.	<i>Bedford.</i>
New, G. W.	<i>Greensburg.</i>
Parry, Charles	<i>Indianapolis.</i>
Patterson, R. J.	<i>do.</i>
Pennington, Joel	<i>Milton, Wayne Co.</i>
Personett, L. D.	<i>Washington.</i>
Reeder, W.	<i>Corydon.</i>

Riley, J. M.	<i>New Albany.</i>
Ritter, Levi	<i>Plainfield.</i>
Rodgers, J. H. D.	<i>Madison.</i>
Ronalds, Hugh	<i>Evansville.</i>
Rose, Landon C.	<i>Laporte.</i>
Rowan, B. C.	<i>Fort Wayne.</i>
Sarber, W. E.	<i>Palestine.</i>
Sexton, H. G.	<i>Rushville.</i>
Sheets, L. D.	<i>Liberty.</i>
Shields, P. S.	<i>New Albany.</i>
Shively, James S.	<i>Marion, Grant Co.</i>
Sloan, John	<i>New Albany.</i>
Sommes, Joseph	<i>Vincennes.</i>
Sutton, George	<i>Aurora.</i>
Sweeny, T. J.	<i>New Albany.</i>
Talbert, A. V.	<i>Westfield.</i>
Taylor, D. W.	<i>Jalapa.</i>
Town, R. R.	<i>New Albany.</i>
Vickey, A. M.	
West, Calvin	<i>Hagerstown.</i>
Windle, J. A.	<i>Bluntsville.</i>
Winton, Wm. R.	<i>Wabash.</i>
Wishard, Wm. H.	<i>Greenwood.</i>
Woodburn, J. H.	<i>Indianapolis.</i>
Woodworth, B. S.	<i>Fort Wayne.</i>
Wright, J. J.	<i>Monrovia.</i>

ILLINOIS.

Allen, George T.	<i>Marine.</i>
Amerman, George K.	
Andrews, E.	<i>Chicago.</i>
Bailey, F. K.	<i>Joliet, Will Co.</i>
Baldwin, S. G.	<i>Decatur.</i>
Bane, Wm. M.	<i>Payson.</i>
Banks, E. C.	<i>Charleston.</i>
Barnett, C. V.	
Bartlett, John	<i>Chicago.</i>
Bevan, Thomas	<i>do.</i>
Blaney, J. V. Z.	<i>do.</i>
Bloodgood, James	<i>do.</i>
Brainard, Daniel	<i>do.</i>

Brenkle, Daniel D.	<i>Winchester.</i>
Bridges, V. R.	<i>Salisbury.</i>
Brooks, J. W.	
Brown, H. B.	<i>Rockford.</i>
Brown, J. A.	
Bunce, James	<i>Galesbury.</i>
Byford, W. H.	<i>Chicago.</i>
Chamberlain, W. O.	
Cheeny, L. P.	<i>Chicago.</i>
Clark, C. M.	<i>Galva.</i>
Clark, Charles W.	<i>Rockford.</i>
Clark, Lucius	
Colburn, E. M.	<i>Peoria.</i>
Coolidge, Charles	<i>Warsaw.</i>
Cooper, E. S.	<i>Peoria.</i>
Coopins, P. G.	<i>Fairweather.</i>
Crane, A. J.	
Crothers, E. K.	<i>Blomington.</i>
Crouse, D. F.	<i>Mount Carroll.</i>
Curtis, J. B.	<i>Decatur.</i>
Davis, N. S.	<i>Chicago.</i>
Davis, Wm. H.	<i>La Salle.</i>
De Witt, M. F.	
Dickinson, Edward	<i>Peoria.</i>
Dodge, David	<i>Chicago.</i>
Duffield, E. G.	<i>Woodstock.</i>
Durham, Henry	<i>La Salle.</i>
Earle, Silas	<i>Onarga.</i>
Edmiston, T. K.	<i>Clinton.</i>
Edwards, Willis G.	<i>Alton.</i>
Evans, John	<i>Chicago.</i>
†Everett, S. W.	<i>Quincy.</i>
Fisher, A.	
Fisher, T. D.	
Fitch, L. P.	
Fitch, T. D.	<i>Kewanee.</i>
Foote, D. E.	<i>Belvidere.</i>
Foster, J. H.	
Fox, G. M.	
Fox, W. R.	<i>Wilmington.</i>
Freer, J. W.	<i>Chicago.</i>

Frye, Joseph C.	<i>Peoria.</i>
Gardner, E. C.	<i>Vermont.</i>
Golleday, H. P.	<i>Lacon.</i>
Goodbrake, C.	<i>Clinton.</i>
Gorham, Charles	
Graham, J. N.	<i>Chicago.</i>
Gregg, P.	<i>Rock Island.</i>
Hall, Geo. W.	<i>Carthage.</i>
Haller, F. B.	<i>Vandalia.</i>
Hamill, R. C.	<i>Chicago.</i>
Hamilton, Wm. R.	<i>Peoria.</i>
Harriman, H. C.	<i>Jerseyville.</i>
Hard, A.	<i>Aurora.</i>
Hard, C.	<i>Ottawa.</i>
Harrington, W. C.	<i>Payson.</i>
Hatch, Ira	
Haven, S. R.	
Hay, Walter	<i>Chicago.</i>
Haydock, M. O.	<i>do.</i>
Herrick, W. B.	<i>do.</i>
Herrick, Josiah B.	<i>Vandalia.</i>
Hewins, L. T.	
Hillis, Wm. A.	<i>Hillsboro'.</i>
Hinsey, Jos. C.	<i>Pekin.</i>
Hitchcock, Horatio	<i>Chicago.</i>
Hobbs, J. C. H.	<i>Galena.</i>
Holmes, E. L.	
Hollester, J. H.	<i>Chicago.</i>
Hume, S. T.	
Hurd, H. S.	<i>Galesburg.</i>
Hurlbut, H. N.	<i>Chicago.</i>
Hurlbut, V. L.	<i>do.</i>
Isham, R. N.	<i>do.</i>
Johnson, H. A.	
Johnson, H. H.	<i>Chicago.</i>
Johnson, C.	<i>York.</i>
Johnson, M. J.	
Jones, H. Webster	<i>Chicago.</i>
King, Joseph	<i>Decatur.</i>
King, J. S.	<i>Lemont.</i>
Kirwan, P.	<i>Ottawa.</i>

Knox, Wm. A.	<i>Rock Island.</i>
Lake, J. J.	
Lardner, E. C.	
Lattimer, C. C.	
Lewis, B. S.	<i>De Witt.</i>
Long, S.	<i>Springfield.</i>
Luce, A. H.	<i>Bloomington.</i>
Madden, Z. H.	<i>Clinton.</i>
Maus, Jos. S.	<i>Perkin.</i>
Maus, W. S.	<i>do.</i>
McAllister, J.	<i>Chicago.</i>
McArthur, A. L.	<i>Joliet.</i>
McCord, D. O.	<i>York.</i>
Merriman, A. L.	
Miller, De Laskie	<i>Chicago.</i>
Miller, W. G.	
Nance, Hiram	<i>Kewanee.</i>
Nichols, Adams	<i>Quincy.</i>
Noble, H.	<i>Heyworth.</i>
Noble, S. W.	<i>Le Roy.</i>
Paddock, S. A.	<i>Princeton.</i>
Page, J. L.	<i>Chicago.</i>
Paoli, Gethard	
Palmer, A. B.	<i>Chicago.</i>
Parker, Henry	<i>do.</i>
Parker, M.	<i>do.</i>
Parks, C. R.	
Pashley, Jno. S.	
Paterson, Neils P.	<i>Chicago.</i>
Perry, Joseph	
Pierson, Daniel	
Porter, John B.	
Prince, David	<i>Jacksonville.</i>
Quigley, W. C.	<i>Chicago.</i>
Ralston, J. N.	<i>Quincy.</i>
Rankin, C. D.	
Robbins, H. C.	<i>Newark.</i>
Robinson, W.	<i>Dover.</i>
Rogers, T. P.	<i>Bloomington.</i>
Ross, J. P.	
Rouse, Rudolphus	<i>Peoria.</i>

Samuel, J. B.	<i>Carrollton.</i>
Secord, Van Courtland	<i>Galva.</i>
Sedgwick, W. W.	<i>Sandwich.</i>
Shepherd, M.	<i>Payson, Adams Co.</i>
Shumway, C. W.	<i>Chicago.</i>
Skelling, David	<i>Winchester.</i>
Smith, H. M.	<i>Vincennes.</i>
Smith, Orrin	
Spitler, A.	<i>Carthage.</i>
Stahl, Adam	<i>Quincy.</i>
Steele, E. A.	
Steele, James M.	<i>Grandview.</i>
Stewart, A. E.	<i>Bloomington.</i>
Stout, Joseph	<i>Ottawa.</i>
Stipp, George W.	<i>Bloomington.</i>
Stormont, D. W.	<i>Grandview.</i>
Ten Brook, John	
Terry, A. R.	<i>Joliet.</i>
Thomas, Granville S.	
Thompson, Samuel	<i>Albion, Edwards Co.</i>
Tibbetts, L. P.	
Truesdell, Cilvin	<i>Rock Island.</i>
Trowbridge, S. T.	<i>Decatur.</i>
Tucker, D. M.	
Varien, Wm.	<i>Chicago.</i>
Wanzer, Hiram	<i>do.</i>
Warner, L. F.	<i>do.</i>
Washburn, Thomas D.	<i>Lawrenceville.</i>
Welch, Wm. W.	<i>La Salle.</i>
Wickersham, S.	<i>Chicago.</i>
White, Chas.	
White, F. W.	<i>Chicago.</i>
Williams, Hezekiah	<i>Alton.</i>
Wilkins, T.	<i>Vandalia.</i>
Wing, Henry	
Wood, Wm.	<i>Cairo.</i>
Worrell, T. F.	
Wright, N.	
Young, D. W.	<i>Aurora.</i>

MISSOURI.

Adreon, Stephen W.	<i>St. Louis.</i>
Allen, J. M.	<i>Prospect Hill.</i>
Alleyne, J. S. B.	<i>St. Louis.</i>
Alexander, John B.	<i>Lexington.</i>
Atkinson, J. F.	<i>do.</i>
Barnes, Jno.	<i>St. Louis.</i>
Barret, R. T.	<i>do.</i>
Baumgarten, Fred. E.	<i>do.</i>
Chandler, Chas. Quarles	<i>Rockfort.</i>
Clarke, R.	<i>St. Louis.</i>
Coons, A. J.	<i>do.</i>
Cooper, D. M.	<i>do.</i>
Currie, Wm. A.	<i>Jefferson City.</i>
Edgar, Wm. S.	<i>St. Louis.</i>
Engleman, George	<i>do.</i>
Frazer, E. S.	<i>do.</i>
Golden, Walter S.	<i>do.</i>
Hartt, Geo. C.	<i>Boonville.</i>
Hempstead, C. W.	<i>St. Louis.</i>
Holmes, R. S.	<i>do.</i>
Johnson, George	<i>do.</i>
Johnson, John B.	<i>do.</i>
Johnson, Richard P.	<i>do.</i>
Knodel, Oliver B.	<i>St. Joseph.</i>
Lemoine, E. S.	<i>St. Louis.</i>
Lewis, R. K.	<i>Huntsville.</i>
Linten, M. L.	<i>St. Louis.</i>
Magoffin, John	<i>do.</i>
Massie, T. E.	<i>do.</i>
McDowell, Joseph N.	<i>do.</i>
McMurray, John H.	<i>Independence.</i>
McPheeters, Wm. M.	<i>St. Louis.</i>
Meade, D. E.	<i>do.</i>
Mendenhall, T. J.	
Moore, John S.	<i>St. Louis</i>
Moses, S. Gratz	<i>do.</i>
Pallen, M. A.	<i>do.</i>
Perry, L. P.	<i>do.</i>
Penn, George	<i>Fee-fee.</i>

Pollak, S.	<i>St. Louis.</i>
Pope, Charles A.	<i>do.</i>
†Reyburn, Thomas	<i>do.</i>
Reynolds, J. W.	<i>Fort William.</i>
Riley, A. A.	<i>Fulton.</i>
Ritchie, S.	<i>Liberty.</i>
Schoeneich, H.	<i>St. Louis.</i>
Shoemaker, Hammond	<i>Milwood.</i>
Scott, J. W.	<i>St. Louis.</i>
Smith, J. D.	<i>Fayette.</i>
Smith, E. F.	<i>St. Louis.</i>
Stevens, C. W.	<i>do.</i>
Swallow, G. C.	<i>Columbia.</i>
Tandy, D. C.	<i>St. Louis.</i>
Vaughn, Isaac P.	<i>Glasgow.</i>
Walker, George S.	<i>St. Louis.</i>
Washington, James, R.	<i>do.</i>
Watters, Jno. H.	<i>do.</i>
Welburn, John C.	<i>Frankford.</i>
Wilson, J. W.	<i>St. Louis.</i>
Wislizénus, Adolphus	<i>do.</i>
Woodson, John C.	<i>Spencerburg.</i>

ARKANSAS.

Armstrong, F. W.	<i>Pine Bluff.</i>
F. Grundy McGavoch	<i>Pecan Point.</i>

MICHIGAN.

Allen J.	<i>Ann Arbor.</i>
Andrews, J.	<i>Pawpaw.</i>
Arnold, S. R.	<i>Monro.</i>
Axford, S. M.	<i>Flint.</i>
Barnum, B.	<i>Schoolcraft.</i>
Beech, J. H.	<i>Coldwater.</i>
Bennett, J.	<i>Centreville.</i>
Brodie, Wm.	<i>Detroit.</i>
Brown, J. A.	<i>do.</i>
Christian, E. P.	<i>do.</i>
Clapp, H. C.	<i>Pawpaw.</i>
Cobb, H. P.	<i>Detroit.</i>
Cobb, L. H.	<i>do.</i>

Cone, E. D.	<i>Hillsdale.</i>
Cox, Edward	<i>Battle Creek.</i>
Davenport, Lewis	<i>Detroit.</i>
Denton, S.	<i>Ann Arbor.</i>
Douglass, S. H.	<i>do.</i>
Durton, Samuel	<i>do.</i>
Egery, Edward A.	
Fanner, C. P.	<i>Ann Arbor.</i>
Ford, Corydon L.	<i>do.</i>
French, S. B.	<i>Battle Creek.</i>
Gorton, J. C.	<i>Detroit.</i>
Gunn, Moses	<i>do.</i>
Haze, W. H.	<i>Farmington.</i>
Hitchcock, Homer D.	
Inglis, R.	<i>Detroit.</i>
Jenks, E. W.	<i>Sturgis.</i>
Johnson, G. K.	<i>Pontiac.</i>
Kibbie, J.	<i>Port Huron.</i>
Kinney, M. C.	<i>Lapeer.</i>
Klein, P.	<i>Detroit.</i>
Leasia, J. A.	<i>Williamston.</i>
†Leland, A. L.	<i>Detroit.</i>
Leete, Albert E.	<i>Romeo.</i>
Leach, E.	<i>Owassa.</i>
McCollom, C.	<i>Romeo.</i>
Murray, Andrew	<i>Niles.</i>
Nims, Dwight	<i>Homer.</i>
Paddack, J.	<i>Pontiac.</i>
Palmer, A. B.	<i>Detroit.</i>
Patterson, M. A.	<i>Tecumseh.</i>
Pierce, James L.	<i>Corunna.</i>
Pitcher, Zina	<i>Detroit.</i>
Platt, A.	<i>Grand Rapids.</i>
Potter, A. O.	<i>Ann Arbor.</i>
Rice, R. S.	<i>Detroit.</i>
Richardson, S. D.	
†Robinson, L. G.	<i>Detroit.</i>
Russell, Geo. B.	<i>do.</i>
Sager, A.	<i>Ann Arbor.</i>
Seely, T. P.	<i>do.</i>

Shepard, Charles	<i>Grand Rapids.</i>
Snyder, I.	
Stebbins, N. D.	<i>Detroit.</i>
Storm, A. R.	<i>Almont.</i>
Stockwell, C. M.	<i>Port Huron.</i>
Stewart, Morse	<i>Detroit.</i>
Stone, A. R.	<i>Almonte.</i>
Smith, J. S.	<i>Armada.</i>
Tomkins, L. D.	<i>Cassapolis.</i>
Tanner, C. P.	<i>Ann Arbor.</i>
Taylor, Hen.	<i>Mount Clemens.</i>
Tillson, Philo	<i>Romeo.</i>
Wells, B. P.	<i>Niles.</i>
Wells, E.	<i>Ann Arbor.</i>
White, John B.	<i>Saginaw.</i>

IOWA.

Adler, John	<i>Davenport.</i>
Allen, J. R.	<i>Keokuk.</i>
Armour, Samuel G.	<i>do.</i>
Arnold, Edward A.	<i>Davenport.</i>
Baker, John W. H.	<i>do.</i>
Barrows, Egbert S.	<i>do.</i>
Carpenter, Horace	<i>Blue Grass.</i>
Cary, L. H.	<i>Toledo.</i>
Edwards, T. O.	<i>Dubuque.</i>
Elbert, Jno. D.	<i>Keosauqua, Van Buren Co.</i>
Ely, Jno. F.	<i>Cedar Rapids.</i>
Ford, E. R.	<i>Keokuk.</i>
Fountain, E. J.	<i>Davenport.</i>
Francis, E. C.	<i>Keokuk.</i>
Horr, Asa	<i>Dubuque.</i>
Hughes, J. C.	<i>Keokuk.</i>
Lay, Sam. C.	
Lewis, R. S.	<i>Dubuque.</i>
Lyons, W. B.	<i>Huntington.</i>
Malcolm, A. B.	<i>Dubuque.</i>
Meeker, Daniel	<i>Keokuk.</i>
McGugin, D. L.	<i>do.</i>
Rauch, J. H.	<i>Burlington.</i>
Sanborn, J. E.	<i>Keokuk.</i>

Sandford, John F.	<i>Keokuk.</i>
Siveter, Thomas	<i>Salem.</i>
Sprague, Joseph	
Taylor, M. K.	
Van Patten, N.	<i>Davenport.</i>
Watson, Wm.	<i>Dubuque.</i>
White, J. W.	<i>Stockport.</i>
Witherwax, J. M.	<i>Davenport.</i>

WISCONSIN.

Adams, Homer	<i>Janesville.</i>
Ayres, D. Cooper	<i>Green Bay.</i>
Bartlett, John K.	<i>Milwaukee.</i>
Bicknell, S. W.	<i>Beloit.</i>
Brisbane, W. Henry	<i>Arena.</i>
Brown, J. J.	<i>Madison.</i>
Carr, E. S.	
Castleman, A. L.	<i>Delafield.</i>
Chapman, C. B.	<i>Madison.</i>
Douseman, John B.	<i>Milwaukee.</i>
McKinley, Hays	<i>Kenosha.</i>
Meachem, John G.	
Pease, C. G.	<i>Janesville.</i>
Stoddard, Charles L.	
Taggart, C. H.	
Thorn, Samuel S.	<i>Milwaukee.</i>
Treat, R. B.	
Van Duzen, Harmon	
Wells, Wm. L.	<i>Milwaukee.</i>
Wilbur, George	<i>Mineral Point.</i>

MINNESOTA.

Ford, John D.	<i>Winona.</i>
Hand, D. W.	<i>St. Paul.</i>
Le Boutillier, C. W.	<i>St. Anthony.</i>
Murphy, John	<i>do.</i>
Potts, Thomas R.	<i>St. Paul.</i>

CALIFORNIA.

Harvey, O.	<i>Placerville.</i>
Little, William B.	<i>San Francisco.</i>

KANSAS.

Logan, C. A.	
Stormont, D. W.	
Tinks, Tiffin	<i>Leavenworth.</i>

DACOTAH TERRITORY.

Jayne, Wm.	<i>Yankton.</i>
------------	-----------------

CHEROKEE NATION.

Ross, R. D.	<i>Grand Sabine.</i>
-------------	----------------------

UNITED STATES ARMY.

Cuyler, J. M.	Porter, J. B.
Jarvis, N. S.	Tripler, Chas. S.
McLaren, A. N.	Wood, R. C.
Moses, Israel	

UNITED STATES NAVY.

Bache, B. F.	Horner, G. R. B.
†Barrington, Samuel	Lockwood, John
Clymer, Geo.	Maxwell, C. D.
Delany, M. G.	Pinkney, Ninian
Dillard, T.	Wood, W. Maxwell.
Greene, J. M.	

FOREIGN.

W. F. Atlee,	} Delegates from the <i>American Medical Society in Paris.</i>
A. J. Semmes,	
R. R. McIlvaine,	
W. H. Berry,	
N. J. Pittman,	

INDEX.

A.

Address of President Jewell, [51](#)
 Andrews, report on diatheses, their surgical relations and effects, [119](#)
 American method of treating joint diseases and deformities, [141](#)
 American medical necrology, [185](#)

C.

Case of diarrhœa adiposa, [173](#)
 Code of medical ethics, [329](#)
 Cox, C. C., on American medical necrology, [185](#)

D.

Davis, report on American method of treating joint diseases and deformities, [141](#)
 Diarrhœa adiposa, case of, [173](#)
 Diatheses, their surgical relations and effects, [117](#)
 Aplastic diathesis, [120](#)
 Complications of specific animal poisons, [124](#)
 Diagnosis prior to dangerous manifestations, [128](#)
 Signs of aplastic and plastic diatheses, [129](#)
 Treatment, [129](#)
 Normal diathesis, [135](#)
 Hyperplastic diathesis, [135](#)
 Treatment, [137](#)

E.

Elsberg, Louis, report on laryngoscopic therapy, [307](#)

G.

Griscom, John [H.](#), report on diarrhœa adiposa, [173](#)

J.

Joint diseases and deformities, American method of treating, [141](#)

L.

Laryngoscopic therapy, report on, [307](#)

M.

Minutes of fourteenth annual meeting, [9](#)
 Report of Committee of Arrangements, [9](#)
 List of delegates, [12](#)
 Nominating committee, [19](#)
 Report of Committee on Order No. 6 of surgeon-general, [29](#)
 Report of Committee on Nominations, [33](#)
 Report of Committee on Voluntary Contributions, [34](#), [36](#)
 Report of Committee to memorialize Congress on rank of surgeons in army, [37](#)

N.

Necrology, American medical, [185](#)

O.

Officers of American Medical Association, [345](#)

P.

Percy, Samuel, report on veratrum viride, [219](#)
 Permanent members of American Medical Association, [346](#)
 Plan of organization, [315](#)
 Regulations, [315](#)
 Ordinances, [324](#)
 Prize Essay, report on veratrum viride, [219](#)

R.

- Report of Committee on Medical Education, 73
- Report of Committee on Medical Literature, 97
 - General character of periodical medical publications of the United States, 99
 - List of medical periodical publications of the United States, 100
 - American medical publications since 1860, 101
 - List of new works, 102
 - List of new editions, 104
 - List of minor publications and pamphlets, 105
 - Reprints of European medical publications, 108
 - List of new works, 108
 - List of new editions, 109
 - Measures for encouraging a national literature, 111
- Report of Committee on Publication, 43
- Report on American method of treating joint diseases and deformities, 141
 - Développement of treatment, 141
 - Historical sketch, 142
 - Essential parts of apparatus, 150
 - Improvements as to material and mode of application, 150
 - Summary of pathological basis of treatment, 153
 - Description of apparatus, 161
 - Mode of application, 164
 - Infrequency of bony ankylosis, 166
 - Non-necessity of tenotomy, 167
- Report on diarrhœa adiposa, 173
 - History, 173
 - Treatment, 175
 - Analysis of reported cases, 176
- Report on laryngoscopic therapy, 307
- Report on veratrum viride, 223
 - Section First—Natural history, 223
 - Botany and physical characteristics, 223
 - History, 224
 - Section Second—Chemistry and pharmacy, 226
 - Chemical history, 226

Report on veratrum viride—*continued.*

- Process for obtaining tincture, resinoid, and alkaloid, 227
- Chemical tests and reagents for detection of alkaloid, and its comparison with alkaloids obtained from other species, 229
- Dose and mode of administration, 233
- Section Third—Physiological action on animals, 235
 - Physiological action of veratrum viride on animals, 235
 - Physiological action of resinoid principles on animals, 243
 - Physiological action of alkaloid veratria on animals, 246
 - Physiological action of veratrum viride on frogs and bats, revealed by microscopical examination of the circulating blood, 249
- Section Fourth—Therapeutic applications, 254
 - A few cases in point, 254
 - In typhus and typhoid fevers, 269
 - In phthisis, 271
 - Means of diagnosis in diseases of lungs and heart, 271
 - Therapeutic application of resinoid, 272
 - General synopsis of alkaloid veratria, 275
- Section Fifth—Summary of physiological and therapeutic action on man, 277
 - General action, 277
 - On the vascular system, 280
 - On the respiratory system, 282
 - On the nervous system, 283
 - On the muscular system, 284
 - On the secretory system, 284
 - On the alimentary canal, 286
 - Emetic action, 286
 - Large and poisonous doses, 291
 - Cumulative action, 293
- Section Sixth—Modus operandi, 294

T.

- Treasurer's report, 45







THE UNIVERSITY OF CHICAGO

UNIVERSITY OF MICHIGAN



3 9015 07027 7176

BOUND

MAR 27 1940

UNIV. OF MICH.
LIBRARY

